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United States
Department of
Agriculture

Cooperative State
Research Service

Food and Agriculture Competitively Awarded Research and Education Grants

Fiscal Year 1992

FOOD AND AGRICULTURE
COMPETITIVELY AWARDED
RESEARCH AND EDUCATION GRANTS
FISCAL YEAR 1992

UNITED STATES
DEPARTMENT OF
AGRICULTURE

PREPARED BY THE OFFICE OF GRANTS
AND PROGRAM SYSTEMS, COOPERATIVE
STATE RESEARCH SERVICE

DECEMBER 1992

FOREWORD

Research and Education are the keystones to this Nation's continuing success in agriculture, food and forestry while enhancing our natural resources. This publication lists the grants supported in a wide variety of programs in the Cooperative State Research Service. These programs are in addition to the research programs supported on a formula basis at eligible universities.

The National Research Initiative Competitive Grants Program supported research in the following research divisions: Natural Resources and the Environment; Nutrition, Food Quality and Health; Animal Systems; Plant Systems; Markets, Trade, and Policy; and Processing for Value Added Products. A Strengthening Awards Program was also supported. Grants are listed under the research programs in each of the above divisions as well as under major cross-cut headings where subjects such as forest biology, global change, etc. were supported in several program areas.

The Biotechnology Risk Assessment Program supports biotechnology risk assessment research to help address concerns about the effects of introducing certain biotechnology products into the environment and to help regulators develop policies concerning the introduction of such products. Proposals were invited in the area of biotechnology risk assessment research as appropriate to agricultural plants, animals and microbes.

The Special Research Grants Program, through competitively awarded grants, addresses a number of important areas of research in aquaculture and water quality.

The Rangeland Research Grants Program supported research to improve productivity of the Nation's rangeland.

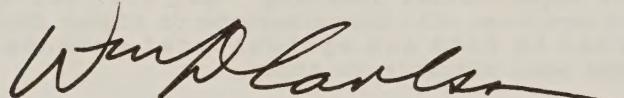
The USDA National Needs Graduate Training Grants Program, initiated in 1984, has achieved a notable record and is proving to be an important part of the solution to the serious erosion of our food and agricultural scientific expertise. The FY 1992 National Needs Graduate Fellowships Program supported pre-doctoral fellows in the areas of animal biotechnology, management or marketing (food, forest products, agribusiness), and food science and human nutrition.

The Higher Education Challenge Grants Program supported projects focusing on curricula design and materials development, faculty preparation and enhancement, instruction delivery systems, and student experiential learning. All U.S. colleges and universities with baccalaureate or higher degree programs in food and agricultural science or business were eligible to apply.

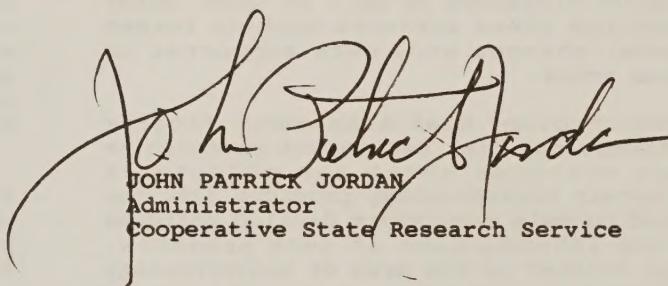
The Capacity Building Grants Program, targeted to the 1890 Institutions and Tuskegee University, supported high priority research projects, teaching projects, curricula design and materials development, faculty preparation and enhancement, instruction delivery systems, and student recruitment and retention. The aim of this program is to more firmly establish these institutions as full partners in the food and agricultural sciences and education system.

The U.S. Department of Agriculture (USDA) supports a Small Business Innovation Research (SBIR) Program. The USDA SBIR Program supports high-quality research proposals, from qualified small businesses, that address important problems facing American agriculture. In many cases university and Federal scientists serve as consultants or collaborators on these research projects. The USDA SBIR Program has proven to be an effective mechanism for commercialization of important agricultural technologies.

In order to keep U.S. agriculture strong, resilient, and moving forward this combination of research, teaching, and fellowship programs to attack important and difficult problems in agricultural sciences serves to provide the broad knowledge base essential to reduce costs and keep U.S. agriculture competitive in the world marketplace.



WILLIAM D. CARLSON
Associate Administrator
Office of Grants and Program Systems
Cooperative State Research Service



JOHN PATRICK JORDAN
Administrator
Cooperative State Research Service

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This publication was prepared by the Awards Management Division Staff, Office of Grants and Program Systems, Cooperative State Research Service, U.S. Department of Agriculture.

Limited copies are available from the following offices: CSRS Information Office, Room 328, 901 D Street SW, U.S. Department of Agriculture, Washington, DC 20250-2200, the National Research Initiative Competitive Research Grants Office, Room 323, 901 D Street SW, U.S. Department of Agriculture, Washington, DC 20250-2200 and the Proposal Services Branch, Room 303, 901 D Street SW, U.S. Department of Agriculture, Washington, DC 20250-2200.

FOOD AND AGRICULTURE COMPETITIVELY AWARDED RESEARCH AND EDUCATION GRANTS FISCAL YEAR 1992

THE GRANTS PROGRAMS

The research grants programs of science and education under which the competitive selection process was used during fiscal year 1992 were the following:

1. National Research Initiative Competitive Grants Program to support basic and mission-linked research in the food and agricultural sciences.

2. The Biotechnology Risk Assessment Program to support research to help address concerns about the effects of introducing certain biotechnology products into the environment and to help regulators develop policies concerning the introduction of such products.

3. Special Research Grants Program to support research deemed by Congress and the Department of Agriculture to be of particular importance to the Nation.

4. Rangeland Research Grants Program to support basic research in certain areas of rangeland research.

These sources of funding supplement and complement funding of Federal agricultural research and the basic State research institution formula funding by Congress to help maintain a viable, effective, ongoing State-Federal agricultural research capability for this country.

In addition, grants were awarded competitively under the following programs:

5. Food and Agricultural Sciences National Needs Graduate Fellowships Grants Program to help develop professional and scientific expertise in the food and agricultural sciences.

6. The Capacity Building Grants Program to support competitive grants at the 1890 Institutions and Tuskegee University, to strengthen institutional capacities in food and agricultural sciences teaching programs and research.

7. The Higher Education Challenge Grants Program to support competitive grants to strengthen teaching programs in the food and agricultural sciences at U.S. colleges and universities.

8. Small Business Innovation Research Program, a primary aim of which is to stimulate technological innovation in the private sector.

Grant funds for all of the above programs are administered through the Cooperative State Research Service.

Guidelines for grants to be awarded competitively are published annually in the Federal Register, usually near the beginning of each fiscal year. The guidelines identify selected research areas, anticipated funding levels, and requirements for the submission of proposals.

If you want further information on programmatic aspects of these grants, contact:

Dr. William D. Carlson
Associate Administrator
Office of Grants and Program Systems
Cooperative State Research Service
U.S. Department of Agriculture
Washington, D.C. 20250-2200

If you want information on administrative aspects of these grants, contact:

Mr. Terry J. Pacovsky
Director
Awards Management Division
Office of Grants and Program Systems
Cooperative State Research Service
U.S. Department of Agriculture
Washington, D.C. 20250-2200

Single copies or annual or semiannual subscriptions for the Federal Register are available for a small charge from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

The following are listings of awards (arranged by program areas) for fiscal year 1992. Please note that some of these awards are renewals, continuation awards, or other amendments to existing projects and are identifiable by agreement periods starting prior to October 1, 1991. These grants were reviewed and awarded in the current fiscal year. The agreement period reflects the total of the previous and current award periods; the funds shown are for the current award period only.

++Continuation Award - when shown, indicates awarded projects that were reviewed in a prior fiscal year. Funds are allotted each year over the duration of the grant. Please note that the agreement period indicates the total length of the award. However, the funds shown are for the current fiscal year increment only.

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM

The following tabulation lists the funds awarded in the various divisions and programs in fiscal year 1992 under the National Research Initiative Competitive Grants Program. Also included are the total number of awards funded with each division.

Natural Resources and the Environment	<u>\$17,007,853</u>	Plant Systems	<u>\$37,795,230</u>
<i>(Total 143 Awards)</i>			<i>(Total 360 awards)</i>
Plant Responses to the Environment		Plant Genetic Mechanisms and Molecular Biology	
* Forest/Rangeland/Crop Ecosystems		Plant Growth and Development	
Water Quality		Photosynthesis/Respiration	
Improved Utilization of Wood and Wood Fiber		Nitrogen Fixation and Metabolism	
Triagency Natural Resources		Plant Pathology/Weed Science	
+ Natural Resources, Strengthening		Entomology/Nematology	
		* PS-Forest/Rangeland/Crop Ecosystems	
		Alcohol Fuels	
		Plant Genome	
		Triagency Plant Systems	
		+ Plant Systems, Strengthening	
Nutrition, Food Quality and Health	<u>\$6,141,725</u>	Markets, Trade and Policy	<u>\$3,792,000</u>
<i>(Total 51 awards)</i>			<i>(Total 38 awards)</i>
Human Nutrient Requirements for Optimal Health		Markets, Competitiveness and Technology	
Food Safety		Rural Development	
+ Nutrition, Strengthening		+ Markets, Strengthening	
Animal Systems	<u>\$23,622,019</u>	Processing for Value Added Products	<u>\$3,779,523</u>
<i>(Total 156 awards)</i>			<i>(Total 29 awards)</i>
Reproductive Biology of Animals		Processing for Value Added	
Cellular Growth and Developmental Biology of Animals		+ Processing, Strengthening	
Animal Molecular Genetics			
Molecular and Cellular Basis of Animal Disease			
+ Animal Systems, Strengthening			
Cross-Divisional or Cross-Programmatic Areas:			
Forestry Related Research			
Global Change Research			
Animal Health Related Research			
Animal Genetic Related Research			

*Reviewed as one program

+Reviewed as one program

The authority for this program is contained in section 2 (b) of the Act of August 4, 1965, as amended (7 U.S.C. 450i(b)). Proposals may be submitted by any State agricultural experiment station, college, university, other research institution or organization, Federal agency, private organization, corporation, or individual. Proposals from scientists at non-United States organizations are not eligible for support.

NATURAL RESOURCES AND THE ENVIRONMENT

Research in the area of natural resources and the environment addresses contemporary issues important for agriculture and for society. Knowledge in diverse scientific disciplines is needed in order to understand the influence of environmental fluctuations, to foster sustainability and economic viability, and to enhance stewardship of natural resources. Program Areas in this Division include: Plant Responses to the Environment; Forest/Rangeland/Crop Ecosystems; Water Quality; and Improved Utilization of Wood and Wood Fiber.

NATURAL RESOURCES AND THE ENVIRONMENT

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PLANT RESPONSES TO THE ENVIRONMENT

Awards in this area support research aimed at understanding the plant's response to natural and anthropogenically-perturbed environmental factors. The major goal of the program is to provide the basic knowledge needed for devising strategies for decreasing the impact of environmental stress and for adapting agricultural and forest practices to possible changes predicted to accompany global climate fluctuations.

Studies on mechanisms at the ecophysiological, whole plant, cellular or molecular level which explain organismal response are emphasized. The environmental factors of interest include water, temperature, light (including UV-B), nutrient, and atmospheric chemical composition (including carbon dioxide, ozone, sulfur dioxide and other greenhouse gases).

National Research Initiative Competitive Grants Program
 Plant Responses to the Environment

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Arizona Tucson, AZ 85721 Title: The Molecular Response to Salt Stress is Magnified in Roots	H. Bohnert	92-37100-7624	\$ 190,000	09/01/92- 08/31/95
USDA, ARS, Pacific West Area Albany, CA 94710 Title: Characterization of a Dehydration Stress Inducible Protein Kinase	M. Walker-Simmons J. Ried	92-37100-7540	\$ 120,000	09/01/92- 08/31/94
USDA, ARS, Pacific West Area Albany, CA 94710 Title: Stress Induced Phosphorylation of Polypeptides in Barley Plants	F. DuPont	92-37100-7669	\$ 120,000	09/01/92- 08/31/94
University of California, Berkeley Berkeley, CA 94720 Title: Photosystem-II Damage and Repair Cycle in Chloroplasts	A. Melis	92-37100-7529	\$ 106,400	09/01/92- 08/31/94
University of California Davis, CA 95616-8671 Title: Kinematics of Root Growth Under Water Stress and Mechanical Impedance	W. Silk	92-37100-7625	\$ 147,000	09/15/92- 09/30/95
University of California Davis, CA 95616-8671 Title: Characterizing the Endoplasmic Reticulum Iron Reductase of Kidney Bean	R. Travis	92-37100-7570	\$ 36,100	09/01/92- 08/31/93
University of California Davis, CA 95616-8671 Title: The Role of Ethylene in Salt- and Flooding-Induced Disorders in Tomato Plants	S. Yang	92-37100-7571	\$ 163,500	09/01/92- 08/31/95

National Research Initiative Competitive Grants Program
 Plant Responses to the Environment

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
An Individual Awardee El Cerrito, CA 94530 Title: An MDR-Like Vacuolar Transport Protein Implicated in Heavy Metal Tolerance	D. Ortiz	92-37100-7627	\$ 84,300	08/01/92-07/31/94
University of California Riverside, CA 92521 Title: Integrated Control of Energy Metabolism and Protein Synthesis in Corn Under Hypoxic Stress	J. Roberts	92-37100-7626	\$ 190,000	09/01/92-08/31/95
University of California Riverside, CA 92521 Title: Regulation of a Histone H1 Gene by Abscisic Acid During Drought Stress	E. Bray	90-37280-5645	\$ 125,000	09/01/90-08/31/94
University of California Riverside, CA , 92521 Title: Financial Support for the 16th Annual Symposium in Plant Physiology	T. Close E. Bray	92-37100-7572	\$ 6,000	09/01/92-08/31/93
University of California Riverside, CA 92521 Title: Post-Transcriptional Regulation of the Hypoxic Stress Response of Maize	J. Bailey-Serres	90-37280-5663	\$ 120,000	09/01/90-08/31/94
USDA/ARS Northern Plains Area Fort Collins, CO 80526 Title: Responses of Mycrotrophic C3 and C4 Rangeland Grasses to Atmospheric CO ₂ and Water	J. Morgan W. Knight W. Hunt	92-37100-7670	\$ 140,000	09/15/92-09/30/94
Florida State University Tallahassee, FL 32306 Title: Guard-cell Specific Gene Expression in Response to Water Stress and ABA	W. Outlaw	92-37100-7573	\$ 120,000	09/15/92-06/30/95

National Research Initiative Competitive Grants Program
 Plant Responses to the Environment

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
USDA/ARS South Atlantic Area Athens, GA 30613	M. Redinbaugh W. Campbell	92-37100-7541	\$ 170,000	09/01/92- 08/31/95
Title: Induction by Environmental Nitrate of a Unique Metabolic State in Plant Roots				
University of Georgia Research Foundation, Inc. Athens, GA 30602	A. Purvis R. Shewfelt	92-37100-7833	\$ 120,000	09/15/92- 09/30/94
Title: Potential Mediation of Stress-induced Peroxidation in Plant Membranes by the Alternative Pathway				
University of Hawaii, Manoa Honolulu, HI 96822	H. Yamamoto	92-37100-7574	\$ 6,200	07/15/92- 07/31/92
Title: Conference on Photosynthetic Responses to the Environment				
University of Hawaii, Manoa Honolulu, HI 96822	H. Harrington	92-37100-7737	\$ 132,000	09/01/92- 08/31/95
Title: Characterization of a Heat Shock-Induced Calmodulin-Binding Protein				
Iowa State University of Science and Technology Ames, IA 50011	C. Stewart T. Prasad	92-37100-7646	\$ 120,000	08/01/92- 07/31/94
Title: Mitochondrial Changes Accompanying Chilling Injury and Acclimation to it in Maize Seedlings				
Purdue Research Fdn. West Lafayette, IN 47907	P. Goldsbrough	92-37100-7521	\$ 160,000	08/01/92- 07/31/95
Title: Molecular Analysis of Metal Tolerance in Plants				
Purdue Research Fdn. West Lafayette, IN 47907	P. Hasegawa R. Bressan M. Narashimhan	92-37100-7738	\$ 120,000	09/01/92- 08/31/94
Title: NaCl Regulation of Plasma Membrane and Tonoplast ATPase Gene Expression During Salt Adaptation				

National Research Initiative Competitive Grants Program
 Plant Responses to the Environment

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Purdue Research Foundation West Lafayette, IN 47907 Title: Extracellular Matrix Proteins in Cell Wall/Membrane Adhesion	R. Bressan P. Hasegawa	92-37100-7628	\$ 120,000	09/01/92- 08/31/94
University of Kentucky Research Foundation Lexington, KY 40506-0057 Title: Mechanisms of Transport Leading to Vacuolar Zn, Cd, Mn Storage/Sequestration	G. Wagner	92-37100-7538	\$ 112,700	09/01/92- 08/31/94
Harvard University Cambridge, MA 02138 Title: Role of Calmodulin (CaM) and CaM-binding Proteins in Stomatal Responses to Stress	S. Assmann	92-37100-7537	\$ 190,000	08/01/92- 07/31/95
USDA/ARS Beltsville Area Beltsville, MD 20705 Title: Plant Adaptation to Iron Deficiency Stress	F. Turano M. Holden	92-37100-7539	\$ 110,000	09/01/92- 08/31/94
USDA/ARS Beltsville Area Beltsville, MD 20705 Title: Potential Impact of CO ₂ and Temperature on Respiratory Carbon Loss in Plants	J. Bunce	92-37100-7575	\$ 190,000	09/15/92- 09/30/95
University of Maryland College Park, MD 20742 Title: Implications of Increasing UV-B Radiation on Loblolly Pine and Sweetgum	J. Sullivan A. Teramura	92-37100-7530	\$ 174,200	09/01/92- 08/31/94
University of Maryland College Park, MD 20742 Title: Foliar Flavonoid Changes in Soybeans Exposed to UV-B Radiation	A. Teramura W. Kenworthy	92-37100-7576	\$ 130,000	09/01/92- 08/31/94

National Research Initiative Competitive Grants Program
 Plant Responses to the Environment

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Michigan State University East Lansing, MI 48824 Title: Regulation of Gene Expression in Response to Cold Temperatures	M. Thomashow	92-37100-7531	\$ 160,000	09/01/92- 08/31/95
University of Minnesota Minneapolis, MN 55415 Title: Mechanisms by which Heat Stress Disrupts Maize Endosperm Development	R. Jones	92-37100-7440	\$ 120,000	07/15/92- 07/31/94
University of Missouri Columbia, MO 65211 Title: Drought Tolerance Mechanisms in Black Walnut (<i>Juglans nigra</i> L.)	S. Pallardy	92-37100-7647	\$ 153,600	09/01/92- 08/31/95
University of Missouri Columbia, MO 65211 Title: Nitrogen and CO ₂ Effects on Leaf Growth - Photosynthesis Relationships in Tall Fescue	C. Nelson	92-37100-7629	\$ 180,000	09/01/92- 08/31/95
University of Missouri Columbia, MO 65211 Title: Boron and Aluminum Interaction with Ascorbate Metabolism and Root Growth	D. Blevins	92-37100-7577	\$ 178,000	08/01/92- 07/31/95
Agri. & Forestry Expt. Station Mississippi State University Mississippi State, MS 39762 Title: Molecular Studies of Heat Tolerance in <i>Agrostis palustris</i>	D. Luthe	92-37100-7671	\$ 100,000	09/15/92- 09/30/94
Duke University Durham, NC 27706 Title: Response of Temperate and Tropical N ₂ -Fixing Trees to Global Environmental Change	R. Thomas D. Richter	92-37100-7535	\$ 172,300	08/01/92- 07/31/94

National Research Initiative Competitive Grants Program
 Plant Responses to the Environment

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Rutgers, The State University Piscataway, NJ 08855-1089 Title: The Effect of Heat Shock on Secretion in Barley Aleurone Layers	F. Belanger	92-37100-7536	\$ 180,000	08/01/92- 07/31/95
Rutgers, The State University Piscataway, NJ 08855-1089 Title: Oxidative Stress: The Role of Superoxide Dismutase and Ascorbate Peroxidase	B. Zilinskas	92-37100-7739	\$ 120,000	09/01/92- 08/31/94
Cornell University Ithaca, NY 14853 Title: Adaptation to Temporally-Varying Environments	M. Geber	90-37280-5460	\$ 130,000	09/01/90- 08/31/94
Ohio State University Research Foundation Columbus, OH 43210 Title: Proline Biosynthetic Genes and Control of Osmotic Stress in Plants	D. Verma	92-37100-7648	\$ 180,000	09/01/92- 08/31/95
Oklahoma State University Stillwater, OK 74078 Title: Molecular Basis of CAM Induction by Salt Stress	J. Cushman	92-37100-7761	\$ 170,000	09/15/92- 09/30/95
Oregon State University Corvallis, OR 97331 Title: Physiology and Molecular Biology of Poplar Bark Storage Proteins	T. Chen G. Coleman	92-37100-7672	\$ 180,000	08/15/92- 08/31/95
Oregon State University Corvallis, OR 97331 Title: Growth and DNA-Damage Responses of Arabidopsis and Crop Plants to UV-B Light	J. Hays	92-37100-7725	\$ 180,000	09/01/92- 08/31/95

National Research Initiative Competitive Grants Program
 Plant Responses to the Environment

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Gordon Res. Conference Kingston, RI 02881 Title: Gordon Research Conference on Temperature Stress in Plants	P. Steponkus	92-37100-7762	\$ 5,600	09/01/92-03/31/93
University of Tennessee Knoxville, TN 37996-0140 Title: Physiological and Genetic Studies of Salt Tolerant Mutants in Ceratopteris	L. Hickok R. Auge	92-37100-7673	\$ 120,000	08/01/92-07/31/94
Texas A&M Research Foundation College Station, TX 77843 Title: Genes Induced by Plant Water Deficit	J. Mullet	91-37100-5865++	\$ 60,000	09/01/91-08/31/93
Texas Tech University Lubbock, TX 79409-1035 Title: Genetic Relationships Between Heat Shock Proteins and Thermotolerance in Wheat	H. Nguyen K. Morrow	92-37100-7903	\$ 160,000	09/01/92-08/31/95
Southwest Texas State University San Marcos, TX 78666 Title: Photomorphogenic Effects of UV-B Radiation on the Growth and Pigmentation of Higher Plants	P. Barnes	92-37100-7763	\$ 170,000	09/01/92-08/31/95
Utah State University Logan, UT 84322 Title: Plant Action Spectra to Link Stratospheric Ozone Reduction with Biosphere Responses	M. Caldwell	92-37100-7630	\$ 250,000	09/15/92-09/30/95
University of Utah Salt Lake City, UT 84112 Title: Hydraulic Limitation of Gas Exchange and Drought Tolerance in Trees	J. Sperry J. Ehleringer	92-37100-7532	\$ 180,000	08/01/92-07/31/95

++ Continuation Award

National Research Initiative Competitive Grants Program
 Plant Responses to the Environment

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Virginia Polytechnic Institute and State University Blacksburg, VA 24061	R. Alscher B. Chevone J. Hess	92-37100-7534	\$ 5,700	08/01/92- 10/31/92
Title: Gaseous Pollutants and Plant Metabolism				
University of Vermont Burlington, VT 05405	D. DeHayes J. Cumming G. Hawley	92-37100-7740	\$ 130,000	09/01/92- 08/31/94
Title: Role of Pollution - Induced Calcium Deficiencies in Freezing Injury of Red Spruce				
Board of Regents University of Wisconsin Madison, WI 53706	R. Amasino	92-37100-7533	\$ 170,000	08/01/92- 07/31/95
Title: Molecular Genetic Analysis of Vernalization in Arabidopsis				

Total : \$ 6,978,600

NATURAL RESOURCES AND THE ENVIRONMENT

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FOREST/RANGELAND/CROP ECOSYSTEMS

The goal of this program area is to further the understanding of underlying biological and ecological processes in ecosystems that can contribute to enhanced plant productivity and to the well-being and sustainability of plant communities. Investigations on how major landscapes function at ecophysiological, population, community, and biogeochemical levels will provide knowledge essential for improving agricultural and forestry practices. Studies on whole ecosystems or components of ecosystems were encouraged, but were not limited to the following areas: (1) influence of abiotic and biotic factors on carbon, nutrient, water and energy flow in ecosystems and on the mechanisms that control such fluxes, (2) soil physical and chemical properties and processes that affect water and nutrient availability, (3) responses of plant communities and soil food webs to management practices, disturbance and environmental change (including successional and mycorrhizal studies), and (4) interspecific antagonisms and interactions among plants in relationship to management practices.

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Ecosystems Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Auburn University Auburn University, AL 36849	G. Glover R. Mitchell D. Gjerstad	92-37101-7434	\$ 87,147	09/15/92- 09/30/94
Title: Extension of Neighborhood Approach to Study Interference Among Three Perennial Species				
University of Arizona Tucson, AZ 85721	G. McPherson	92-37101-7435	\$ 161,000	08/01/92- 07/31/96
Title: Shifts in Lower Treeline: Identifying Casual Factors				
University of California Davis, CA 95616-8671	C. Toft D. Elliott-Fisk J. Richards	92-37101-7419	\$ 270,000	08/01/92- 07/31/94
Title: Mechanisms of Development of Great Basin Playa-dune Ecosystems: Mono Lake, CA				
University of California Davis, CA 95616-8671	S. Geng	92-37309-7446	\$ 93,640	07/15/92- 07/31/94
Title: Landscape and Biological Control Strategies to Prevent Pocket Gopher Damage in Alfalfa				
University of California Davis, CA 95616	M. Barbour	92-37101-7420	\$ 75,418	07/15/92- 07/31/94
Title: Predictors of Early Succession and Regeneration in California Red Fir Forests				
University of California Riverside, CA 92521	D. Freckman J. Menge	92-37101-7436	\$ 220,000	07/01/92- 06/30/95
Title: Contributions of Plant-Parasitic and Decomposer-Based Nematodes to Citrus Sustainability				
San Francisco State University San Francisco, CA 94132	V. Parker	92-37101-7421	\$ 170,167	07/15/92- 07/31/95
Title: Forest Invasion of Chaparral				

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Ecosystems Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Workshop on Earthworm Ecology in Forest/Rangeland/Crop Ecosystems in North America	P. Hendrix	92-37101-7394	\$ 10,000	07/01/92-06/30/93
Purdue Research Foundation West Lafayette, IN 47907 Title: Compensatory Mechanisms of Hardwood Forest Communities in a Changing Climate	A. Gillespie	92-37101-7437	\$ 64,223	08/01/92-07/31/94
University of Maine Orono, ME 04469-5715 Title: Indicators of Forest Ecosystem Response to Experimental Soil Warming	I. Fernandez	92-37101-7978	\$ 174,137	09/15/92-09/30/94
University of Minnesota Minneapolis, MN 55415 Title: Competitive Symbioses Among Three VA-Mycorrhizal Species Colonizing Field Corn	F. Pfleger M. Rosenberg	92-37101-7395	\$ 183,850	09/01/92-08/31/95
An Individual Awardee Durham, NC 27705 Title: Community Dynamics of Arbuscular Endomycorrhizal Fungi	J. Bever	92-37101-7461	\$ 82,400	09/15/92-09/30/94
Duke University Durham, NC 27706 Title: Response of Western Montane Forest Ecosystems to Global Climate Change	W. Schlesinger	91-37101-6724++	\$ 127,000	09/01/91-08/31/93
Rutgers, The State University Piscataway, NJ 08855-1089 Title: The Effects of Ectomycorrhizae on Decomposition in Coniferous Forest Soil	J. Ehrenfeld W. Zhu	92-37101-7977	\$ 106,453	09/01/92-08/31/94

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NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Ecosystems Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Cornell University Ithaca, NY 14853 Title: Response of Pin Cherry-Northern Hardwood Stands to Changes in Resource Availability	T. Fahey	92-37101-7438	\$ 95,000	07/01/92- 06/30/95
State University of New York, Albany Albany, NY 12201 Title: Pathogen Incidence and Rate of Spread: Impact of Habitat and Landscape Attributes	D. Leopold J. Castello C. Davis	92-37101-8029	\$ 200,000	09/15/92- 09/30/95
Oregon State University Corvallis, OR 97331 Title: Long-Term Vegetation, Disturbance, and Climate Dynamics in Western Oregon	P. Schoonmaker	92-37101-7462	\$ 143,737	07/01/92- 06/30/94
Oregon State University Corvallis, OR 97331 Title: Measuring N2 Fixation and N Cycling in Pure and Mixed Red Alder Stands Using 15N	D. Myrold T. Righetti D. Hibbs	92-37101-7566	\$ 190,000	09/01/92- 08/31/95
Oregon State University Corvallis, OR 97331 Title: Water and Nutrient Movement and Availability in Crop Ecosystems Impacted by Cracking Clay Soils	R. Roseberg	92-37101-7567	\$ 97,942	09/01/92- 08/31/95
USDA/ARS North Atlantic Area Philadelphia, PA 19118 Title: Effect of Conventional and Sustainable Agriculture Upon Mycorrhizal Fungi	D. Douds R. Janke G. Becard	92-37101-7439	\$ 75,000	09/01/92- 08/31/93
Texas A&M Research Foundation College Station, TX 77843 Title: A Demographic Basis for Monitoring Vegetation Change in Grassland Communities	D. Briske S. Archer T. Boutton	92-37101-7463	\$ 222,392	09/01/92- 08/31/95

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Ecosystems Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Texas A&M Research Foundation College Station, TX 77843 Title: Amelioration of Degraded Rain Forest Soils by Trees	R. Fisher	92-37101-7568	\$ 153,536	08/01/92-07/31/95
Rice University Houston, TX 77252-2692 Title: Rice Field Management and Mitigation of Methane Emissions	R. Sass	91-37101-6814++	\$ 100,000	09/15/91-09/30/93
Texas Tech University Lubbock, TX 79409-1035 Title: Exoenzyme Activities Underlying Lignocellulose Degradation: A Modeling Synthesis	D. Moorhead R. Sinsabaugh A. Linkins	92-37101-7569	\$ 86,248	08/01/92-07/31/94
Utah State University Logan, UT 84322 Title: Microbial Assimilation of Nitrate Controls Nitrogen Loss from Forest Ecosystems	J. Stark	92-37101-7976	\$ 200,000	09/15/92-09/30/95
University of Utah Salt Lake City, UT 84112 Title: Forest CO ₂ Cycling and Global CO ₂	J. Ehleringer	92-37101-7975	\$ 150,000	09/15/92-09/30/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: Species - Specific Exchange Reactions Controlling Solubility and Uptake of Elements	P. Helmke P. Barak	92-37101-7422	\$ 121,593	09/01/92-08/31/95

Total : \$ 3,660,883

++ Continuation Award

NATURAL RESOURCES AND THE ENVIRONMENT

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WATER QUALITY

Non-point runoff of water contaminants and pollutants such as pesticides and other organics, inorganic nutrients, animal wastes, excess salts and metals is a major landscape problem. Grants in this area support research that will improve understanding of ecological, biochemical and bio-physical processes affecting water quality.

Investigations into mechanisms that affect accumulation, persistence, degradation and transport of water contaminants and pollutants are supported in the following scientific disciplines: (1) Wetlands, riparian and forest ecology, (2) Soil chemistry and physics, (3) Microbial ecology and biochemistry, and (4) Plant/rhizosphere/water contaminant interactions.

National Research Initiative Competitive Grants Program
NRICGP Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671	C. Puente	92-37102-7396	\$ 210,000	08/01/92-07/31/95
Title: A Fractal Geometric Approach to Soil Pollution Dynamics				
Colorado State University Fort Collins, CO 80523	M. Trlica G. Frasier J. Smith W. Leininger	92-37102-7397	\$ 200,000	09/01/92-08/31/94
Title: Grazing Impacts on Filtering Sediment and Nutrients in the Riparian Zone				
Colorado State University Ft. Collins, CO 80523	R. Zimdahl	92-37102-7464	\$ 50,000	09/01/92-08/31/93
Title: Degradation, Leaching, and Adsorption of Metsulfuron Methyl in Six Colorado Soils				
Colorado State University Ft. Collins, CO 80523	G. Butters	91-37102-6783++	\$ 53,669	09/15/91-09/30/93
Title: The Influence of Methodology on Validation of Field-Scale Solute Transport Models				
University of Florida Gainesville, FL 32611	K. Reddy C. Johnston	92-37102-7398	\$ 150,000	09/15/92-09/30/95
Title: Organic Phosphorus Mineralization in Wetlands				
USDA/ARS South Atlantic Area Athens, GA 30613	R. Hubbard G. Newton	92-37102-7399	\$ 200,000	09/01/92-08/31/94
Title: Treatment of Animal Waste by Overland Flow Through Grass-Riparian Zone Buffers				
University of Georgia Research Foundation, Inc. Athens, GA 30602	D. Radcliffe J. Box P. Hendrix W. Hargrove	91-37102-6816++	\$ 131,561	09/15/91-09/30/93
Title: Characterization of Macropores and their Effect on Nitrate Leaching				

++ Continuation Award

National Research Initiative Competitive Grants Program
 NRICGP Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Illinois Urbana, IL 61801	C. Boast J. Mitchell S. Larson F. Simmons	92-37102-7401	\$ 145,000	08/15/92- 08/31/95
Title: Water Flow and Herbicide Transport Into and Within Wormholes				
University of Illinois Urbana, IL 61801	T. Ellsworth A. Valocchi	92-37102-7400	\$ 150,000	09/01/92- 08/31/94
Title: Spatial and Temporal Scale Dependence of Transport Processes in the Vadose Zone				
University of Illinois Urbana, IL 61801	D. Kovacic K. Konyha M. David L. Osborne	92-37102-7402	\$ 300,000	08/01/92- 07/31/95
Title: Biogeochemistry of Constructed Wetlands: Reducing Agricultural NPS Pollution				
Purdue Research Fdn. West Lafayette, IN 47907	E. Kladivko R. Turco G. Van Scoyoc	92-37102-7403	\$ 150,000	07/01/92- 06/30/94
Title: Rainfall Characteristics and Preferential Flow of Chemicals in Soil				
Board of Supervisors Louisiana State University and A&M College Baton Rouge, LA 70893-0905	R. DeLaune S. Pezeshki W. Patrick	92-37102-7542	\$ 250,000	09/01/92- 08/31/95
Title: Influence of Agriculture on Biogeochemical, Physiological and Ecological Processes in Florida Everglade Wetlands				
Michigan State University East Lansing, MI 48824	L. Hedin G. Robertson	92-37102-7404	\$ 174,000	07/01/92- 06/30/94
Title: Speciation of Solution Nitrogen Losses from Agricultural and Forested Landscapes				
Michigan State University East Lansing, MI 48824	S. Anderson	92-37102-7405	\$ 105,000	08/01/92- 07/31/95
Title: Primisulfuron Sorption, Diffusion and Degradation in Soils - 19F NMR Study				

National Research Initiative Competitive Grants Program
 NRICGP Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Minnesota Minneapolis, MN 55415	J. Schubauer-Berigan C. Johnston S. Bridgman	92-37102-7406	\$ 200,000	09/01/92- 08/31/94
Title: Spatial Dynamics of Nutrient and Sediment Removal Processes in Riverine Wetlands				
North Carolina State University Raleigh, NC 27695-7003	G. Chescheir R. Skaggs J. Gilliam	92-37102-7408	\$ 199,000	07/01/92- 06/30/95
Title: Hydrology and Water Quality of a Natural Forested Wetland in the Coastal Plain				
Research Foundation of State University of New York Albany, NY 12201	P. Jeffers	92-37102-7407	\$ 105,000	07/01/92- 06/30/95
Title: Degradation and Transport of Organophosphorus Pesticides				
Oregon State University Corvallis, OR 97331	D. Arp	91-37102-6862++	\$ 61,780	09/15/91- 09/30/93
Title: Water Quality and Nitrifying Bacteria: A Molecular Approach				
Agricultural Expt. Station University of Tennessee Knoxville, TN 37901-1071	S. Nodvin H. Miegroet	92-37102-7409	\$ 170,000	07/01/92- 06/30/95
Title: Nitrogen Dynamics and Nitrate Export From Southern Appalachian Forests				
Virginia Polytechnic Institute & State University Blacksburg, VA 24061-0429	D. Berry R. Reneau S. Mostaghimi R. Young	92-37102-7410	\$ 200,000	09/01/92- 08/31/94
Title: Evaluation of Riparian Wetlands as Naturally Occurring Decontamination Zones				
USDA Forest Service Madison, WI 53705	K. Hammel	92-37102-7411	\$ 225,000	09/01/92- 08/31/95
Title: Organopollutant Degradation By Liginolytic Fungi				

++ Continuation Award

Total : \$ 3,430,010

NATURAL RESOURCES AND THE ENVIRONMENT

IMPROVED UTILIZATION OF WOOD AND WOOD FIBER

Improved wood utilization practices depend upon a continually advancing scientific foundation of basic research in wood properties and fundamental components of wood science. This program area supports research that addresses critical barriers to improved wood utilization and that will provide the scientific base from which new research and development can proceed. The major areas of focus include: (1) wood chemistry and biochemistry, (2) physical and mechanical properties of wood and basic wood processing technology, (3) structural wood engineering, and (4) harvesting and forest engineering. Innovative approaches to solving fundamental problems in the field of wood science and technology are encouraged.

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Util. of Wood & Wood Fiber

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Auburn University Auburn University, AL 36849 Title: Evaluation of Grade Yield and Structural Properties of Southern Pine Lumber from Plantation Grown Timber	E. Biblis	92-37103-8030	\$ 70,000	09/15/92-09/30/95
University of California Davis, CA 95616-8671 Title: Combined NMRI/Rheological Studies of Conventional and New Papermaking Processes	R. Powell M. McCarthy	92-37103-7946	\$ 101,000	09/15/92-09/30/94
Colorado State University Ft. Collins, CO 80523 Title: The Effects of Key Variables on the Mechanical Behavior of Nail/ Glue Connections	P. Pellicane	92-37103-7988	\$ 74,000	09/15/92-09/30/94
Institute of Paper Science and Technology Atlanta, GA 30318 Title: Fundamental Studies of the Photo-Initiated Oxidation of Lignin in Wood Fibers	A. Ragauskas	92-37103-8237	\$ 102,000	09/15/92-09/30/94
University of Maine Orono, ME 04469-5715 Title: Wood Processing with Supercritical Fluids. Direct Impregnation and in-situ Precipitation of Polymers and Additives	E. Kiran	92-37103-7989	\$ 105,000	09/15/92-09/30/94
University of Maine Orono, ME 04469-5715 Title: Wood Properties and Yield of Northern Conifers Grown Under Short Rotations	R. Shepard R. Rice	92-37103-8031	\$ 90,000	09/15/92-09/30/95
Michigan Technological University Houghton, MI 49931 Title: Ultimate Capacity Reliability of Wood Structural Systems	W. Bulleit	92-37103-8032	\$ 70,000	09/15/92-09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Util. of Wood & Wood Fiber

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Michigan Technological University Houghton, MI 49931 Title: Biochemistry and Molecular Biology of Monolignol Biosynthetic Enzymes in Woody Species	W. Campbell V. Chiang	92-37103-7945	\$ 120,000	09/15/92- 09/30/94
Mississippi State University Mississippi State, MS 39762 Title: Load-Deformation Relation of Staple Joints and Factors Affecting its Behavior	V. Yadama D. Lyon	92-37103-8081	\$ 45,000	09/15/92- 09/30/94
Mississippi State University Mississippi State, MS 39762 Title: Development of New Wood Preservatives Based on Synergistic Combinations	T. Schultz D. Nicholas	92-37500-8146	\$ 80,000	09/15/92- 03/31/95
Rutgers, The State University Piscataway, NJ 08855-1089 Title: Origin of Oxygen Signal in <i>Phanerocheate crysosporium</i>	C. Frenkel K. Schaich J. Fagan	92-37103-7985	\$ 110,000	09/15/92- 09/30/94
University of Oklahoma Norman, OK 73019 Title: In-Time System Performance and Load-Distribution Behavior of Wood Assemblies	K. Fridley D. Rosowsky	92-37103-8080	\$ 110,000	09/15/92- 09/30/94
Oregon State University Corvallis, OR 97331 Title: Resolution of Strain Components and Stress Development During Moisture Movement	M. Milota	92-37103-7979	\$ 77,000	09/15/92- 09/30/94
Oregon State University Corvallis, OR 97331 Title: Elucidation and Optimization of Bioprotectant Mechanisms Against Wood Staining Fungi	J. Morrell	92-37500-8207	\$ 105,000	09/15/92- 09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Util. of Wood & Wood Fiber

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Oregon State University Corvallis, OR 97331 Title: Enhancing Wood Treatment via Sonification	J. Simonsen J. Wilson	92-37103-7947**	\$ 110,000	09/15/92- 09/30/94
Clemson University Clemson, SC 29634-5326 Title: Water Potential and its Relationship to the Hygroscopic and Water Flow Properties of Wood	P. Peralta	92-37103-7983	\$ 70,000	09/15/92- 09/30/95
Agricultural Expt. Station University of Tennessee Knoxville, TN 37901-1071 Title: Monitoring Changes in Density of a Wood Particle Mat During Pressing	P. Winstorfer W. Moschler G. Walford	92-37103-8082	\$ 77,000	09/15/92- 09/30/94
University of Texas Austin, TX 78712-1111 Title: Synthesis of Composite and Non-Composite Truss Members	D. Wheat	92-37103-8170	\$ 95,000	09/15/92- 09/30/94
Texas A&M Research Foundation College Station, TX 77843 Title: Advanced Stress Rating System Suitable for Small Lumber Mills	D. Bender	92-37500-8209	\$ 76,000	09/15/92- 09/30/94
Virginia Polytechnic Institute & State University Blacksburg, VA 24061-0429 Title: Design Criterion for Wood Floors Subjected to Occupant Induced Vibration	T. Murray J. Dolan	92-37103-7986	\$ 80,000	09/15/92- 09/30/94
Virginia Polytechnic Institute & State University Blacksburg, VA 24061-0429 Title: The Role of Strategy in the Competitiveness of the U.S. Wood Furniture Industry	R. Bush	92-37400-8142	\$ 68,190	09/15/92- 09/30/95

** Split Funded Award

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Util. of Wood & Wood Fiber

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Washington Seattle, WA 98195 Title: Global Competitive Trade in Forest Products and Environmental Impacts Assessment	J. Perez-Garcia	92-37400-8303	\$ 64,000	09/15/92- 09/30/93
University of Washington Seattle, WA 98195 Title: The Use of Fiber Wettability to Assess Sizing Efficiency	K. Hodgson	92-37103-7982	\$ 70,000	09/15/92- 09/30/95
University of Washington Seattle, WA 98195 Title: Improved Recycling of Waste Paper by the Use of Cell Wall Filler Technology	G. Allan	92-37500-7972	\$ 94,000	09/15/92- 09/30/94
USDA Forest Service Madison, WI 53705 Title: Substrate Specificity of Streptomycete Xylanases	T. Jeffries J. Minor C. Hutchinson	92-37103-7984	\$ 78,000	09/15/92- 09/30/94
USDA Forest Service Madison, WI 53705 Title: Modified Urea-Formaldehyde Adhesives for Bonding Wood Composites	A. Conner C. Hill T. Elder	92-37500-8069	\$ 125,000	09/15/92- 09/30/94
USDA Forest Service Madison, WI 53705 Title: Transient Mechanical Behavior of Paperboard Induced by Moisture Sorption	J. Considine	92-37103-8025	\$ 58,000	09/15/92- 09/30/94
USDA Forest Service Madison, WI 53705 Title: Relationships Between Carbohydrate and Lignin Biodegradation by Phanerochaete chrysosporium	P. Kersten	92-37103-8072	\$ 112,000	09/15/92- 09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
 Util. of Wood & Wood Fiber

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
USDA Forest Service Madison, WI 53705 Title: Molecular Genetics of Cellulose Degradation by Phanerochaete Chrysosporium	D. Cullen	92-37103-7980	\$ 112,000	09/15/92- 09/30/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: Strain Measurements in Metal-Plate Wood Connections	R. Rowlands S. Cramer	92-37103-7987	\$ 118,000	09/15/92- 09/30/94
West Virginia Univ. Res. Corp. West Virginia University Morgantown, WV 26506 Title: Molecular Response of Wood Surfaces to Environmental Influences	D. Gardner M. Wolcott	92-37103-7981	\$ 98,000	09/15/92- 09/30/94

Total : \$ 2,764,190

NUTRITION, FOOD QUALITY AND HEALTH

The health of the U.S. Citizen depends on the quality and quantity of the country's food supply and the nutrients consumed by individuals. Research is supported which will contribute to the improvement of human nutritional status by increasing our understanding of requirements of nutrients. Grants are also awarded in the area of food safety, particularly focusing on the pathogenesis, prevention and control of food-borne disease-causing microorganisms.

NUTRITION, FOOD QUALITY AND HEALTH

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**HUMAN NUTRIENT REQUIREMENTS FOR OPTIMAL HEALTH
(HUMAN NUTRITION)**

This program area places an emphasis on research which will increase our knowledge of human nutrient requirements and the factors which influence them. Areas of research which will be emphasized include: nutrient bioavailability, the interrelationship of nutrients, nutrient requirements of healthy individuals across all age groups, mechanisms underlying the relationship between diet and health maintenance (such as the effect of nutrients on the immune system) and cellular and molecular mechanisms underlying nutrient requirements, including nutrient effects on gene expression. Innovative approaches to these fundamental research problems are encouraged.

National Research Initiative Competitive Grants Program
Human Nutrition

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Arizona Tucson, AZ 85721 Title: Regulation of Apolipoprotein B Gene Expression by Dietary Copper Status	K. Lei	92-37200-7579	\$ 150,146	08/01/92- 07/31/95
University of Arizona Tucson, AZ 85721 Title: Dietary Fiber and Lipoprotein Metabolism	M. Fernandez	92-37200-7578	\$ 170,000	09/01/92- 08/31/95
USDA, ARS, Pacific West Area Albany, CA 94710 Title: Estimating Vitamin A Status with Holo-Retinol-Binding Protein Concentrations	B. Burri D. Banksen	92-37200-8034	\$ 55,044	09/15/92- 09/30/94
University of California Berkeley, CA 94720 Title: Conference on Nutrient Regulation during Reproduction and Growth	J. King	92-37200-7580	\$ 5,000	07/15/92- 07/31/93
University of California Davis, CA 95616-8671 Title: Nutritional Importance of Pyrroloquinoline Quinone (PQQ)	R. Rucker	92-37200-8174	\$ 41,552	09/15/92- 09/30/93
University of Colorado Health Sciences Center Denver, CO 80262 Title: Transcriptional Control of Lipoprotein Lipase by Cytokines	R. Eckel	92-37200-7522	\$ 148,401	09/01/92- 08/31/94
Colorado State University Ft. Collins, CO 80523 Title: Regulation of Gene Transcription by Dietary Essential Fatty Acids	S. Clarke	92-37200-7465	\$ 250,000	09/01/92- 08/31/95

National Research Initiative Competitive Grants Program
Human Nutrition

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Connecticut Storrs, CT 06269-2086 Title: Effect of Dietary Lipid on Carotenoid Absorption	R. Clark H. Furr	92-37200-7703	\$ 136,596	08/15/92- 08/31/94
Georgetown University Washington, DC 20057 Title: Dietary Fiber in Blood Pressure Regulation	H. Preuss	92-37200-7581	\$ 180,000	08/01/92- 07/31/95
University of Florida Gainesville, FL 32611 Title: Folate Nutritional Status and In Vivo Kinetics	J. Gregory	92-37200-7466	\$ 162,521	08/01/92- 07/31/94
University of Louisville Research Foundation, Inc. Louisville, KY 40292 Title: Microvascular Responses in Copper Deficiency	D. Schuschke N. Miller	92-37200-7676	\$ 210,000	09/01/92- 08/31/95
Tufts University Boston, MA 02111 Title: Nutritional Regulations of Plasma Homocysteine Levels	J. Selhub P. Jacques	92-37200-7582	\$ 133,105	08/01/92- 07/31/94
Tufts University Boston, MA 02111 Title: Optimizing Nutrient Intake for Prolonged Visual Function	A. Taylor	92-37200-7704	\$ 140,000	09/01/92- 08/31/94
Federation of American Societies of Experimental Biology Bethesda, MD 20814 Title: FASEB Summer Research Conference: Vitamin C and Vitamin E in Free Radical Reactions	R. Rose	92-37200-7513	\$ 4,500	07/01/92- 06/30/93

National Research Initiative Competitive Grants Program
Human Nutrition

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of North Carolina Greensboro, NC 27412-5001 Title: Functions and Metabolism of Copper in T Lymphocytes	M. Failla	92-37200-7544	\$ 231,703	08/01/92- 07/31/95
North Carolina State University Raleigh, NC 27695-7003 Title: Analysis of Carotenoids and Retinoids by Liquid Chromatography-Mass Spectrometry	R. van Breemen S. Schwartz	92-37200-7585	\$ 60,193	08/01/92- 07/31/93
Cornell University Ithaca, NY 14853 Title: Metabolism and Bioavailability Determinants of 13C- Beta Carotene in Humans	R. Parker	92-37200-7584	\$ 160,000	09/01/92- 08/31/94
Cornell University Ithaca, NY 14853 Title: Effects of Diet and Hepatic Metabolism on Sulfur Amino Acid Requirement	M. Stipanuk	92-37200-7583	\$ 108,798	09/01/92- 08/31/94
Children's Hospital Medical Center Cincinnati, OH 45229-2899 Title: Intestinal Calcium Absorption during Lactation and Weaning	B. Specker H. Kalwarf J. Heubi	92-37200-7649	\$ 186,839	08/01/92- 07/31/95
Ohio State University Research Foundation Columbus, OH 43210 Title: Calcium Requirements for Adolescent Females	V. Matkovic	92-37200-7586	\$ 179,216	08/01/92- 07/31/95
Oregon State University Corvallis, OR 97331 Title: Vitamin B-6 - Riboflavin: Nutrient Interaction, Metabolism and Status in Women	J. Leklem L. Miller	92-37200-7587	\$ 160,570	09/01/92- 08/31/95

National Research Initiative Competitive Grants Program
Human Nutrition

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Oregon State University Corvallis, OR 97331 Title: Interaction of Vitamin E and Fish Oil on Lipid Peroxidation in Older Women	R. Wander	92-37200-7650	\$ 150,000	08/15/92-08/31/94
Vanderbilt University Nashville, TN 37232 Title: Fifth Annual Symposium on Selenium in Biology and Medicine	R. Burk	92-37200-7588	\$ 5,000	07/01/92-06/30/93
University of Texas Austin, TX 78713-7726 Title: Manganese Requirements in Elderly Women	J. Freeland-Graves A. Grider	92-37200-8035	\$ 40,000	09/15/92-09/30/93
University of Texas Health Science Center Houston, TX 78712 Title: Dairy Lipids and the Gastrointestinal Barrier	L. Lichtenberger E. Dial	92-37200-7651	\$ 130,000	09/01/92-08/31/94
University of Vermont Burlington, VT 05405 Title: Energy Requirements in Young Children	M. Goran	92-37200-7543	\$ 120,000	08/01/92-07/31/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: The Vitamin K Status of the Breastfeeding Infant Beyond the Newborn Period	F. Greer	92-37200-7705	\$ 135,000	09/01/92-08/31/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: Methods to Assess Vitamin K Status	J. Suttie	92-37200-7545	\$ 140,000	09/01/92-08/31/94

National Research Initiative Competitive Grants Program
Human Nutrition

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Wyoming Laramie, WY 82071 Title: Effect of Total and n3 Polyunsaturated Fat on Physiologic Parameters	K. Broughton	92-37200-7726	\$ 69,963	09/01/92- 08/31/93

Total : \$ 3,664,147

NUTRITION, FOOD QUALITY AND HEALTH

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FOOD SAFETY

Safety of food products is of paramount importance to the producer, processor, distributor, and consumer. The research program in food safety focuses on research questions involving those bacteria responsible for food-borne illness in humans with an emphasis on bacteria growing at refrigeration temperatures. Projects may focus either on pre- or post-harvest bacterial contamination.

National Research Initiative Competitive Grants Program
Food Safety

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
The Board of Trustees University of Arkansas Fayetteville, AR 72701 Title: Virulence Assays in 8 H of Food & Clinical Listeria with Mouse Hybridoma Cells	A. Bhunia M. Johnson	92-37201-8175	\$ 130,000	09/15/92- 09/30/94
University of California Davis, CA 95616-8671 Title: Survival of Food-Borne Pathogens	G. Smith L. Smith	92-37201-8092	\$ 194,000	09/15/92- 09/30/95
University of Florida Gainesville, FL 32611 Title: Effect of Storage and Depuration Temperature on Pathogenic Vibrios in Shellfish	M. Tamplin G. Rodrick H. Aldrich	92-37201-8093	\$ 160,000	09/15/92- 09/30/94
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Viable But Noncultural Listeria monocytogenes: Characterization of a Cellular Response	J. Frank	92-37201-8094	\$ 83,000	09/15/92- 09/30/94
University of Hawaii, Manoa Honolulu, HI 96822 Title: Serotype 4b-specific Surface Antigens of Listeria Causing Epidemic and Sporadic Disease	S. Kathariou	92-37201-8095	\$ 200,000	09/15/92- 09/30/94
University of Idaho Moscow, ID 83843 Title: Intrinsic Resistance of Listeria monocytogenes to Food Antimicrobial Agents	P. Davidson	92-37201-8097	\$ 80,199	09/15/92- 09/30/94
University of Idaho Moscow, ID 83843 Title: The Molecular Structure & Function of Shiga-like Toxin from Escherichia coli	C. Bohach	92-37201-8096	\$ 150,000	09/15/92- 09/30/95

National Research Initiative Competitive Grants Program
Food Safety

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Illinois Urbana, IL 61801 Title: Listeria monocytogenes Virulence	S. Martin	92-37201-8098	\$ 85,000	09/15/92- 09/30/94
University of Massachusetts Amherst, MA 01003 Title: Clostridium perfringens Amylases and Their Use as Indicators of Enterotoxigenicity	R. Labbe	92-37201-8099	\$ 135,000	09/15/92- 09/30/95
Michigan State University East Lansing, MI 48824 Title: ELISA Verification of End-Point Processing Temperatures in Roast Beef	D. Smith J. Pestka A. Booren	92-37201-8100	\$ 183,000	09/15/92- 09/30/95
Bowman Gray School of Medicine of Wake Forest University Winston-Salem, NC 27103 Title: Anti-C. Botulinum Monoclonal Antibodies for Amplified ELISA	G. Doellgast	92-37201-8101	\$ 200,000	09/15/92- 09/30/94
Agricultural Expt. Station Cornell University Ithaca, NY 14853 Title: Improving Detection of Mycotoxin-producing Strains of Neosartorya	D. Splittstoesser	92-37201-8102	\$ 15,936	09/15/92- 09/30/93
Oregon State University Corvallis, OR 97331 Title: Antimicrobial Activity of Nisin Adsorbed to Food Contact Surfaces	M. Daeschel J. McGuire	92-37201-8176	\$ 145,000	09/15/92- 09/30/95
University of Pittsburgh Pittsburgh, PA 15260 Title: Molecular Genetics of Staphylococcal Food Poisoning	S. Khan	92-37201-8103	\$ 185,000	09/15/92- 09/30/95

National Research Initiative Competitive Grants Program
 Food Safety

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Pennsylvania State University University Park, PA 16802 Title: Osmoregulatory Mechanisms of <i>Staphylococcus aureus</i>	K. Miller	92-37201-8104	\$ 135,000	09/15/92- 09/30/95
Agricultural Expt. Station University of Tennessee Knoxville, TN 37901-1071 Title: Safety of Osmotically Concentrated Minimally Processed Vegetables Under MAP	F. Draughon R. Biswal	92-37201-8105	\$ 135,000	09/15/92- 09/30/94

Total : \$ 2,216,135

ANIMAL SYSTEMS

Research across a broad range of animal science areas is urgently needed for the future enhancement of animal production efficiency as well as to address such areas as the modification of animal products. To accomplish this, grants are awarded in four broad areas of research: (1) animal reproductive biology, (2) cellular growth and developmental biology of animals, (3) animal molecular genetics, and (4) mechanisms of animal disease.

ANIMAL SYSTEMS

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REPRODUCTIVE BIOLOGY OF ANIMALS

The primary objective of this program area is to increase our knowledge of reproductive biology in animals of agricultural importance with the goal of increasing reproductive efficiency. This program will consider for support innovative research on: (1) mechanisms affecting embryo survival, endocrinological control of embryo development, mechanisms of embryo-maternal interactions, and embryo-implantation, (2) factors controlling ovarian function including follicular development ovulation, and corpus luteum formation and function, (3) factors controlling male reproductive function, (4) gamete physiology, including oogenesis and spermatogenesis, gamete maturation, mechanism regulating gamete survival in vivo or in vitro, and (5) parturition, postpartum interval to conception, and neonatal survival. This program also encourages research on the mechanisms controlling animal responses to physical and biological stresses that impinge upon reproductive efficiency.

National Research Initiative Competitive Grants Program
 Reproductive Biology of Animals

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671	G. Anderson	92-37203-7994	\$ 180,110	09/01/92- 08/31/94
Title: Relationship of Maternal Immune Response to Maintenance of Ruminant Pregnancy				
University of California Davis, CA 95616-8671	J. Hedrick	92-37203-7951	\$ 189,604	09/15/92- 09/30/94
Title: Fertilization in Teleost Fish: A Block to Polyspermy Hypothesis				
University of California Davis, CA 95616-8671	R. Hansen R. Walzem K. Klasing J. Millam	92-37203-7907	\$ 137,491	09/01/92- 08/31/94
Title: Association of Lipoprotein Functional Properties with Avian Reproductive Performance				
Colorado State University Ft. Collins, CO 80523	H. Sawyer	92-37203-7741	\$ 153,673	09/15/92- 09/30/94
Title: Hormonal Control of Follicular Recruitment in Sheep				
Colorado State University Ft. Collins, CO 80523	G. Seidel	92-37203-7765	\$ 177,000	09/15/92- 09/30/95
Title: Long-term Culture of Bovine Embryos with Anti-oxidants				
University of Florida Gainesville, FL 32611	L. Guillette, Jr.	92-37203-7919	\$ 184,900	09/01/92- 08/31/94
Title: Uterine Growth Factors and Egg Development in the American Alligator				
University of Florida Gainesville, FL 32611	D. Sharp	92-37203-7908	\$ 203,960	09/01/92- 08/31/94
Title: Luteinizing Hormone Synthesis and Secretion Regulation in Horses				

National Research Initiative Competitive Grants Program
 Reproductive Biology of Animals

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Florida Gainesville, FL 32611 Title: Hormonal Regulation of an Oviductal Secretory Protein	W. Buhi F. Simmen	92-37203-7996	\$ 252,113	09/15/92- 09/30/95
Iowa State University of Science and Technology Ames, IA 50011 Title: Pinus Ponderosa and Abortion in Cattle: Physiology and Chemistry	S. Ford J. Rosazza R. Short	92-37203-7918	\$ 339,564	09/01/92- 08/31/95
University of Illinois Urbana, IL 61801 Title: Control of Sertoli Cell Proliferation and Testicular Growth in the Bull	P. Cooke R. Hess	92-37203-7917	\$ 80,212	09/15/92- 09/30/94
University of Illinois Urbana, IL 61801 Title: Regulation of Hepatic Ketogenesis in Low-Birth-Weight Piglets	J. Odle	92-37203-7993	\$ 167,001	09/15/92- 09/30/94
University of Illinois Urbana, IL 61801 Title: Effect of Testosterone on GNRH and POMC Synthesis in the Male	G. Jackson	92-37203-8177	\$ 129,405	09/15/92- 09/30/94
University of Kansas Medical Center Kansas City, KS 66103 Title: Trophoblast Conference	M. Soares	92-37203-7423	\$ 6,005	07/01/92- 06/30/93
University of Maryland College Park, MD 20742 Title: Neuroendocrine Mechanisms and Reproductive Senescence	M. Ottinger	92-37203-7742	\$ 203,026	09/01/92- 08/31/95

National Research Initiative Competitive Grants Program
 Reproductive Biology of Animals

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Michigan Ann Arbor, MI 48109-1248 Title: The Preovulatory GnRH Surge in the Ewe: Its Regulation and Actions	F. Karsch	92-37203-7922	\$ 226,527	09/01/92-08/31/95
University of Michigan Ann Arbor, MI 48109-1248 Title: Sexual Differentiation of Reproductive Neuroendocrine Function	D. Foster R. Wood	92-37203-7921	\$ 242,640	09/01/92-08/31/95
Michigan State University East Lansing, MI 48824 Title: Plasma Cholesterol and Corpus Luteum Function in Cows	T. Herdt R. Fogwell	92-37203-7743	\$ 206,040	09/15/92-09/30/95
University of Missouri Columbia, MO 65211 Title: Characterization of an Ovine Luteal Tissue Inhibitor of Metalloproteinases	M. Smith R. Anthony S. Peterson	92-37203-7950	\$ 141,622	09/01/92-08/31/94
University of Missouri Columbia, MO 65211 Title: Structure, Function and Hormonal Control of Synthesis of Porcine Uterine Proteins	W. Trout	92-37203-7995	\$ 134,900	09/15/92-09/30/94
University of Missouri Columbia, MO 65211 Title: Mechanisms of Parthenogenic Activation in Pigs	R. Prather	92-37203-7834	\$ 151,108	09/01/92-08/31/94
University of Missouri Columbia, MO 65211 Title: Nutritional Neuromodulation of Reproductive Function in Livestock	D. Keisler S. Peterson	92-37203-8036	\$ 224,207	09/15/92-09/30/95

National Research Initiative Competitive Grants Program
 Reproductive Biology of Animals

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Monsanto Agricultural Company St. Louis, MO 63198 Title: Effect of Growth Hormone on Functions of the Corpus Luteum in Cattle	M. Lucy	92-37203-8243	\$ 84,000	09/15/92- 09/30/94
North Carolina State University Raleigh, NC 27695-7003 Title: Enhancement of Early Embryo Survival in Pigs	J. Britt C. Farin	92-37203-7991	\$ 77,092	09/15/92- 09/30/94
Rutgers, The State University New Brunswick, NJ 08903 Title: Relationship of TGF/EFG, Gonadotropin Receptors(R) and EGF-R to Follicle Growth	A. Johnson	92-37203-7767	\$ 192,500	09/01/92- 08/31/95
Rutgers, The State University Piscataway, NJ 08855-1089 Title: Uniparental Inheritance and Inbreeding in Bivalves: Aquacultural Implications	S. Allen	92-37203-7766	\$ 162,947	09/01/92- 08/31/94
Ohio State University Research Foundation Columbus, OH 43210 Title: Ascorbic Acid in Male Reproduction: Fish as a Biomodel in Semen Quality Studies	K. Dabrowski	92-37203-7949	\$ 118,800	09/15/92- 09/30/94
Ohio State University Research Foundation Columbus, OH 43210 Title: Cytokine Actions on Bovine Luteal Cells	J. Pate	92-37203-8037	\$ 185,136	09/01/92- 08/31/94
Oklahoma State University Stillwater, OK 74078 Title: Role of a 30 kDa Endometrial Glycoprotein in Porcine Conceptus Survival	R. Geisert T. Rehberger D. Pomp	92-37203-7953	\$ 117,922	09/01/92- 08/31/94

National Research Initiative Competitive Grants Program
 Reproductive Biology of Animals

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station Oklahoma State University Stillwater, OK 74078 Title: Regulation of Pulsatile Secretion of Gonadotropins in Beef Cows	R. Wettemann	92-37203-8038	\$ 103,237	09/15/92- 09/30/94
Pennsylvania State University University Park, PA 16802 Title: Sperm Surface Components Essential to Sperm-Egg Binding	R. Hammerstedt G. Barbato	92-37203-8106	\$ 80,000	09/15/92- 09/30/93
Gordon Res. Conference Kingston, RI 02881 Title: Gordon Conference on Reproductive Tract Biology	P. Donahoe	92-37203-7441	\$ 5,000	07/01/92- 06/30/93
Texas A&M Research Foundation College Station, TX 77843 Title: Studies on Maternal Recognition of Pregnancy	R. Burghardt T. Blanchard D. Varner	92-37203-7952	\$ 165,950	09/01/92- 08/31/94
Texas A&M Research Foundation College Station, TX 77843 Title: Antiluteolytic Biological Activity of Ovine Trophoblast Protein-One	F. Bazer	91-37203-6896	\$ 165,000	09/01/92- 08/31/95
University of Vermont Burlington, VT 05405 Title: Novel Methods to Trace the Follicular Origins of Luteal Cells	N. Kenny F. Auletta	92-37203-7768	\$ 97,862	09/01/92- 08/31/93
Board of Regents University of Wisconsin Madison, WI 53706 Title: Epigenetic Regulators of Bovine Preimplantation Embryo Development	B. Bavister	92-37203-7920	\$ 213,609	09/01/92- 08/31/95

National Research Initiative Competitive Grants Program
Reproductive Biology of Animals

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Board of Regents University of Wisconsin Madison, WI 53706 Title: Ontogeny and Control of Development of Bovine Preimplantation Embryos	N. First	92-37203-7992	\$ 213,753	09/15/92- 09/30/94

Total : \$ 5,713,916

ANIMAL SYSTEMS

CELLULAR GROWTH AND DEVELOPMENTAL BIOLOGY OF ANIMALS

Research in this program area contributes to our understanding of the biological mechanisms underlying growth and development in animals of agricultural importance. Emphasis is placed on innovative approaches in several research areas including, but not limited to: cell proliferation and differentiation, genetic mechanisms underlying growth and development, metabolic regulators such as growth factors, synthesis and degradation of protein and lipid at the cellular or tissue level, metabolic and nutritional aspects of growth and development including rumen microfloral development, developmental biology of the immune system, and cellular and molecular aspects of the effect of environmental stress on growth and development.

National Research Initiative Competitive Grants Program
 Cellular Growth - Developmental Biology of Animals

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Arizona Tucson, AZ 85721 Title: Skeletal Muscle Satellite Cell Activation	R. Allen	92-37206-7776	\$ 250,000	09/01/92- 08/31/95
University of Arizona Tucson, AZ 85721 Title: Proteases Responsible for Muscle Protein Degradation and their Role in Growth	D. Goll	92-37206-7744	\$ 285,000	09/01/92- 08/31/95
University of California Davis, CA 95616-8671 Title: Endocrine Control of Crustacean Molting and Growth	E. Chang	92-37206-7843	\$ 224,468	09/15/92- 09/30/95
University of California Davis, CA 95616-8671 Title: GH Regulation of Growth Plate Cell Proliferation and Tissue IGF-I Gene Expression	A. Oberbauer J. Murray	92-37206-7915	\$ 181,842	09/15/92- 09/30/95
University of California Davis, CA 95616-8671 Title: Genetic and Physiological Bases of Hybrid Vigor in Oysters	D. Hedgecock	92-37206-8003	\$ 290,000	09/15/92- 09/30/95
University of California Davis, CA 95616-8671 Title: Control of Bovine Mammary Cell Function by IGF-I	R. Baldwin D. Carlson	92-37206-7932	\$ 148,000	09/15/92- 09/30/94
University of California San Francisco, CA 94143-0962 Title: Transforming Growth Factor-B Gene Expression and Action in the Bovine Ovary	M. Skinner	92-37206-8116	\$ 240,000	09/15/92- 09/30/94

National Research Initiative Competitive Grants Program
 Cellular Growth - Developmental Biology of Animals

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Iowa State University of Science and Technology Ames, IA 50011 Title: Cytoskeletal Interactions in Developing and Adult Muscle Cells	T. Huiatt R. Robson	92-37206-8051	\$ 200,000	09/15/92- 09/30/95
University of Iowa Iowa City, IA 52242 Title: Organization of the Cgamma-locus and its Ontogenetic Expression	J. Butler	92-37206-7905	\$ 150,000	09/15/92- 09/30/94
University of Illinois Urbana, IL 61801 Title: Enzymatic and Genetic Analysis of Ruminococcus Cellulases	B. White	92-37206-7844	\$ 300,000	09/01/92- 08/31/95
University of Illinois Urbana, IL 61801 Title: Endocrine Regulation of the Immune System	K. Kelley	92-37206-7777	\$ 250,000	09/01/92- 08/31/95
Purdue Research Foundation West Lafayette, IN 47907 Title: Purification and Characterization of a Mitogenic Factor from Fish Embryos	P. Colledi	92-37206-7745	\$ 165,000	09/15/92- 09/30/94
University of Michigan Ann Arbor, MI 48109-1248 Title: Growth Hormone and Growth Factor Interactions	J. Schwartz	92-37206-7910	\$ 200,000	09/01/92- 08/31/95
University of Missouri Columbia, MO 65211 Title: Transgenic Expression in Bovine Blastocysts Derived by In Vitro Procedures	R. Roberts R. Prather	92-37206-7846	\$ 200,000	09/01/92- 08/31/95

National Research Initiative Competitive Grants Program
 Cellular Growth - Developmental Biology of Animals

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Missouri Columbia, MO 65211 Title: Molecular Mechanisms that Regulate Proliferation of Avian Lymphoid Cells	M. Hannink	92-37206-7845	\$ 180,882	09/01/92- 08/31/95
Monsanto Agricultural Company St. Louis, MO 63198 Title: Relationship of Adipsin with Adiposity in the Pig	J. Miner C. Baile	92-37206-8245	\$ 84,000	09/15/92- 09/30/94
Cornell University Ithaca, NY 14853 Title: Ribosomal Gene Amplification, Recruitment, and Variation in Avian Development	S. Bloom M. Delany	92-37206-7778	\$ 160,000	09/15/92- 09/30/95
Agricultural Expt. Station Cornell University Ithaca, NY 14853 Title: Role of the Novel Peptide MDGI on Mammary Gland Growth and Differentiation	R. Gorewit	92-37206-7779	\$ 125,000	09/01/92- 08/31/94
Syracuse University Syracuse, NY 13210 Title: Control of Myogenin Gene Expression by IGF-I	J. Florini	92-37206-7780	\$ 225,000	09/01/92- 08/31/95
Ohio University Athens, OH 45701-2979 Title: Definition of Amino Acids in the 3rd alpha-Helix of bGH Crucial for Growth	J. Kopchick W. Chen	92-37206-7847	\$ 200,000	09/01/92- 08/31/95
University of Rhode Island Kingston, RI 02881 Title: Larval Striped Bass: Development and Regulation of Nutrient Absorption	J. Specker D. Bengtson	92-37206-7848	\$ 180,000	09/01/92- 08/31/95

National Research Initiative Competitive Grants Program
 Cellular Growth - Developmental Biology of Animals

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Medical University of South Carolina Charleston, SC 29425 Title: Secretory Characteristics of Growth Hormone Cells in Cattle	L. Frawley	92-37206-8052	\$ 215,000	09/01/92- 08/31/95
Texas A&M Research Foundation College Station, TX 77843 Title: Glutamine Utilization by Pig Enterocytes and Intraepithelial Lymphocytes	G. Wu	92-37206-8004	\$ 160,000	09/01/92- 08/31/94
Virginia Polytechnic Institute and State University Blacksburg, VA 24061 Title: Conference on Proteolysis and Protein Turnover	J. Bond D. Goll	92-37206-7849	\$ 5,000	09/01/92- 08/31/93
Board of Regents University of Wisconsin Madison, WI 53706 Title: Role of the Prolactin/Growth Hormone Gene Family in Bovine Fetal Immune Development	L. Schuler	92-37206-7933	\$ 205,265	09/15/92- 09/30/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: Adenosine Regulation of Mammary Gland Development	L. Sheffield	92-37206-7899	\$ 180,000	09/15/92- 09/30/95
University of Wyoming Laramie, WY 82071 Title: Hormonal and Growth Effects on Glycerolipid Synthesis in Ovine Adipose Tissue	D. Rule	92-37206-7963	\$ 175,000	09/01/92- 08/31/95

Total : \$ 5,179,457

ANIMAL SYSTEMS

ANIMAL MOLECULAR GENETICS

The objective of this program is to increase our knowledge and understanding of the structure, organization, function, regulation and expression of genes in agriculturally important animals including aquaculture species. This includes but is not limited to: identification, isolation, characterization of genes, gene products and their regulatory mechanisms, identification of DNA segregation markers, interactions between nuclear and organellar genes and the molecular basis of genetic replication, and development and application of methods to modify the animal genome.

National Research Initiative Competitive Grants Program
 Animal Molecular Genetics

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671 Title: Genetic Mapping of a Major Gene Influencing Animal Growth	J. Medrano	92-37205-7840	\$ 96,513	09/15/92- 09/30/94
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Bovine Genome Mapping: Selected Production Traits	R. McGraw	92-37205-8047	\$ 100,000	09/15/92- 09/30/94
University of Illinois Urbana, IL 61801 Title: Towards a 20 cM Map of the Bovine Genome	H. Lewin R. Fernando	91-37205-6335++	\$ 102,932	09/01/91- 08/31/93
Kansas State University Manhattan, KS 66506 Title: Cytogenetic Approaches to Food Animal Gene Mapping	D. Troyer D. Skinner	92-37205-7841	\$ 83,495	09/15/92- 09/30/94
University of Minnesota Minneapolis, MN 55415 Title: Molecular Genetics of Fish Growth and Development	P. Hackett	92-37205-7842	\$ 250,000	09/15/92- 09/30/95
Cornell University Ithaca, NY 14853 Title: Tissue-Specific Expression of the Lipoprotein Lipase Gene	A. Bensadoun	92-37205-7962	\$ 220,000	09/15/92- 09/30/95
Texas A&M Research Foundation College Station, TX 77843 Title: Constructing a Microsatellite/Cosmid Map of the Bovine Genome	J. Womack	92-37205-8048	\$ 260,000	09/01/92- 08/31/95

++ Continuation Award

National Research Initiative Competitive Grants Program
 Animal Molecular Genetics

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Baylor College of Medicine Houston, TX 77030	J. Rosen	92-37205-8263	\$ 100,000	09/15/92- 09/30/93
Title: Identification of DNA Sequences Required to Target Proteins to the Mammary Gland				
Utah State University Logan, UT 84322	N. Muggli-Cockett T. Bunch	92-37205-7931	\$ 163,500	09/15/92- 09/30/95
Title: Isolation of a Genetic Marker that Segregates with the Spider Lamb Syndrome Gene				
Virginia Polytechnic Institute & State University Blacksburg, VA 24061-0429	E. Wong	92-37205-7928	\$ 150,000	09/01/92- 08/31/95
Title: Role of Pit-1/GHF-1 in the Regulation of Turkey Prolactin Gene Expression				
Virginia Polytechnic Institute and State University Blacksburg, VA 24061	I. Hoeschele	92-37205-8049	\$ 36,047	09/15/92- 09/30/94
Title: Method to Include Genetic Marker Data in Genetic Evaluation of Livestock				
Board of Regents University of Wisconsin Madison, WI 53706	R. Bremel	92-37205-7929	\$ 180,000	09/15/92- 09/30/95
Title: Differences of Alpha-lactalbumin Gene Expression in Dairy Cattle				
Board of Regents University of Wisconsin Madison, WI 53706	B. Kirkpatrick	92-37205-7930	\$ 168,500	09/15/92- 09/30/95
Title: Candidate Gene Contribution to Variation in Bovine Ovulation Rate				
West Virginia Univ. Res. Corp. West Virginia University Morgantown, WV 26506	P. Challoner S. Moss	92-37205-8050	\$ 240,000	09/01/92- 08/31/95
Title: Post-Meiotic Gene Expression During Spermatogenesis: Regulation and Function				

Total : \$ 2,150,987

ANIMAL SYSTEMS

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MECHANISMS OF ANIMAL DISEASE

In order to sustain animal health and well-being and to prevent animal disease, the primary objective of this program area is to increase our understanding of pathogenesis and disease mechanisms. This includes, but is not limited to: mechanisms that alter the normal physiologic state at the molecular, cellular or organ level to produce disease resulting from both biotic and abiotic causes; genetic and cellular mechanisms of disease resistance (eg. molecular immunology and immunogenetics); host and microbial factors influencing colonization of mucosal surfaces; and host-environment interactions that compromise the host defense systems or cause predisposition to disease. Epidemiologic studies on animal diseases that provide insight into etiologic factors and/or control are also considered. The program also encourages research on the mechanisms controlling animal responses to physical or biological stress that impinge upon animal health and well-being or attempts to more clearly define the condition of the well-being of animals.

National Research Initiative Competitive Grants Program
 Mechanisms of Animal Disease

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Auburn University Auburn University, AL 36849 Title: Immediate Early Genes of Channel Catfish Virus	K. Nusbaum R. Bird	92-37204-7998	\$ 54,000	09/15/92- 09/30/94
Agricultural Expt. Station University of Arizona Tucson, AZ 85721 Title: The Molecular Pathogenesis of <i>Serpulina hyodysenteriae</i> Hemolysin	L. Joens	92-37204-8228	\$ 95,000	09/15/92- 09/30/94
University of California Davis, CA 95616-8671 Title: Acetone/Isopropanol Cycle in Ruminants	M. Bruss	92-37204-8107	\$ 95,000	09/15/92- 09/30/94
University of California Davis, CA 95616-8671 Title: The Pathogenesis of Bluetongue Virus Infection of Bovine Blood Cells	N. MacLachlan B. Osburn J. Stott	92-37204-7999	\$ 200,000	09/15/92- 09/30/95
Beckman Research Institute of the City of Hope Duarte, CA 91010 Title: Immunogenetic Elements in the Resistance of Chickens to Infectious Diseases	M. Miller W. Briles	92-37204-8244	\$ 150,000	09/15/92- 09/30/94
University of California, San Diego La Jolla, CA 92093 Title: Development of the Bovine IgG2 Response	L. Corbeil	92-37204-8108	\$ 185,000	09/15/92- 09/30/94
Colorado State University Ft. Collins, CO 80523 Title: Genetic Studies of Insect Vectors of Bluetongue Virus	W. Black M. Robertson W. Tabachnick	92-37204-7960	\$ 100,000	09/01/92- 08/31/94

National Research Initiative Competitive Grants Program
 Mechanisms of Animal Disease

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Delaware Newark, DE 19716 Title: Functional Analysis of the Marek's Disease Virus Genome	R. Morgan	92-37204-8039	\$ 150,000	09/15/92-09/30/95
University of Delaware Newark, DE 19716 Title: Use of an Alphaherpesvirus to Study Cell-Mediated Immunity in the Chicken	C. Keeler	92-37204-8178	\$ 100,000	09/15/92-09/30/94
University of Florida Gainesville, FL 32611 Title: Chicken T Cell Receptor Beta Genes and Disease Resistance	W. McCormack	92-37204-7835	\$ 200,000	09/01/92-08/31/95
University of Florida Gainesville, FL 32611 Title: Development of a Swinepox-Pseudorabies Recombinant Virus for Oral Vaccination	E. Gibbs R. Moyer	92-37204-8289	\$ 120,000	09/15/92-09/30/94
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Molecular Approaches to the Prevention of Ichthyophthirius Infection	H. Dickerson T. Clark	92-37204-7838	\$ 300,000	09/01/92-08/31/95
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Catfish Nonspecific Cytotoxic Cells: Receptors and Signalling	D. Evans L. Jaso-Friedmann	92-37204-7924	\$ 270,000	09/15/92-09/30/95
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Antimicrobial Proteins and Peptides in Avian Phagocytic Leukocytes	B. Harmon J. Glisson	92-37204-8109	\$ 85,000	09/15/92-09/30/94

National Research Initiative Competitive Grants Program
 Mechanisms of Animal Disease

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Iowa State University of Science and Technology Ames, IA 50011 Title: Genetic Regulation in <i>Mycoplasma gallisepticum</i> and its Role in Virulence	F. Minion D. Trampel	92-37204-7836	\$ 230,000	09/15/92- 09/30/95
University of Iowa Iowa City, IA 52242 Title: Genetics of Fimbrial Expression in <i>Salmonella</i>	S. Clegg	92-37204-7837	\$ 170,000	09/15/92- 09/30/94
USDA/ARS Mid-West Area Peoria, IL 61604 Title: Mapping Marek's Disease Virus Genes by Insertional Mutagenesis	R. Silva H. Kung R. Witter	92-37204-8001	\$ 150,000	09/15/92- 09/30/94
University of Illinois Urbana, IL 61801 Title: Molecular and Cellular Immunology of Porcine Memory T Cells	F. Zuckermann	92-37204-7923	\$ 200,000	09/15/92- 09/30/95
University of Illinois Urbana, IL 61801 Title: Host Mechanisms of Resistance and Susceptibility to Bovine Leukemia Virus Infection	H. Lewin L. Schook	92-37204-7956	\$ 100,000	09/01/92- 08/31/94
University of Kentucky Research Foundation Lexington, KY 40506-0057 Title: Function of the Phosphorylation of Influenza Virus Nucleoprotein in Host Specificity	K. Franklin	92-37204-7958	\$ 75,500	09/15/92- 09/30/94
University of Kentucky Research Foundation Lexington, KY 40506-0057 Title: Use of PCR to Study the M Protein Genes of the Equine Group C Streptococci	J. Timoney	92-37204-8113	\$ 101,000	09/15/92- 09/30/94

National Research Initiative Competitive Grants Program
 Mechanisms of Animal Disease

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Louisiana State University Medical Center Shreveport, LA 71130 Title: Molecular Studies for Development of an Equine Herpesvirus Vaccine	D. O'Callaghan S. Jennings	92-37204-8040	\$ 200,000	09/15/92- 09/30/95
Tufts University Boston, MA 02111 Title: Cryptosporidiosis in Calves: Cellular Mechanisms of Disease	S. Tzipori	92-37204-7771	\$ 180,000	09/01/92- 08/31/94
Uniformed Svc. University of the Health Sciences Bethesda, MD 20814-4799 Title: Pathogenesis of Calf Colibacillosis: Role of Cytotoxic Necrotizing Factor Type 2	A. O'Brien	92-37204-7770	\$ 140,000	09/01/92- 08/31/95
Advanced Bioscience Labs, Inc. NCI - Frederick Cancer Research Facilities Frederick, MD 21701-1013 Title: Capsid Targeted Viral Inactivation as an Antiviral Strategy	M. Federspiel S. Hughes	92-37204-8041	\$ 100,000	09/15/92- 09/30/94
Michigan State University East Lansing, MI 48824 Title: Structural and Functional Domains of E. coli Enterotoxin	M. Bagdasarian	92-37204-7839	\$ 230,000	09/15/92- 09/30/95
Michigan State University East Lansing, MI 48824 Title: Regulatory Regions of Marek's Disease Virus: Transactivation	P. Coussens	92-37204-8042	\$ 220,000	09/15/92- 09/30/94
University of Minnesota Minneapolis, MN 55415 Title: The Agent of Proliferative Enteritis: Molecular Identification	C. Gebhart G. Ward	92-37204-8110	\$ 195,000	09/15/92- 09/30/95

National Research Initiative Competitive Grants Program
Mechanisms of Animal Disease

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Washington University St. Louis, MO 63130 Title: Analysis of <i>Salmonella enteritidis</i> Virulence in Chickens	R. Curtiss	92-37204-8000	\$ 220,000	09/01/92- 08/31/94
Agri. & Forestry Expt. Station Mississippi State University Mississippi State, MS 39762 Title: Infectious Cycle and Pathogenesis of Channel Catfish Virus (CCV) and TK-CCV	L. Hanson J. Boyle S. Jack	92-37204-7925	\$ 100,000	09/15/92- 09/30/95
Montana State University Bozeman, MT 59717 Title: Identification, Cloning and Immunogenicity of Adhesions of <i>Tritrichomonas foetus</i>	D. Burgess B. Granger	92-37204-7772	\$ 190,000	09/15/92- 09/30/95
Montana State University Bozeman, MT 59717 Title: Molecular Identification of Targets for Coccidiosis Treatments	M. White M. Abrahamsen C. Speer	92-37204-8179	\$ 160,000	09/15/92- 09/30/94
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704 Title: Site-Directed Mutagenesis of the p125 Polypeptide of Bovine Viral Diarrhea Virus	R. Donis	92-37204-7959	\$ 200,000	09/01/92- 08/31/95
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704 Title: Regulation of Bovine Herpes Virus 1 Transcription During Latent Infection	C. Jones	92-37204-7955	\$ 100,000	09/15/92- 09/30/94
Cornell University Ithaca, NY 14853 Title: Virulence of Mutant Strains of <i>Staphylococcus aureus</i> for the Bovine Mammary Gland	N. Norcross K. Kenny F. Bastida-Corcuera	92-37204-7769	\$ 104,000	09/01/92- 08/31/94

National Research Initiative Competitive Grants Program
 Mechanisms of Animal Disease

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Cornell University Ithaca, NY 14853	Y. Grohn	92-37204-7957	\$ 150,000	09/01/92- 08/31/94
Title: The Interdependency of Disease and Milk Yield in Holstein Dairy Cows				
Cornell University Ithaca, NY 14853	H. Mohammed C. Parrish E. Atwill	92-37204-8043	\$ 75,000	09/15/92- 09/30/94
Title: The Epidemiology of Equine Monocytic Ehrlichiosis				
Cornell University Ithaca, NY 14853	K. Schat	92-37204-8044	\$ 180,000	09/15/92- 09/30/94
Title: Marek's Disease Virus Genes Associated with Cell-mediated Immunity				
Ohio State University Research Foundation Columbus, OH 43210-1063	K. Brock	92-37204-7961	\$ 150,000	09/15/92- 09/30/95
Title: Molecular Analysis of Bovine Viral Diarrhea Virus to Identify Biotypic Determinants				
Oklahoma State University Stillwater, OK 74078	G. Murphy A. Confer	92-37204-7773	\$ 230,000	09/15/92- 09/30/95
Title: Molecular Analysis of <i>Pasteurella haemolytica</i> Major Outer Membrane Proteins				
Oregon State University Corvallis, OR 97331	J. Leong	92-37204-7997	\$ 106,000	09/15/92- 09/30/94
Title: Cell Receptors in Pathogenesis of Infectious Hematopoietic Necrosis Virus				
University of Pennsylvania Philadelphia, PA 19104	D. Schifferli	92-37204-7901	\$ 270,000	09/15/92- 09/30/95
Title: Fimbriae-Mediated Adhesion of Enterotoxigenic <i>Escherichia coli</i>				

National Research Initiative Competitive Grants Program
 Mechanisms of Animal Disease

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Pennsylvania Philadelphia, PA 19104 Title: Interactions of Listeria with Host Cells	J. Sanger	92-37204-7926	\$ 85,000	09/01/92- 08/31/94
South Dakota State University Brookings, SD 57007 Title: Analysis of Porcine Intestinal Receptors to Which Escherichia Coli K88 Pili Bind	D. Francis B. Bosworth A. Erickson T. Casey	92-37204-7774	\$ 160,000	09/15/92- 09/30/95
South Dakota State University Brookings, SD 57007 Title: Pathogenetic Mechanism of Swine Infertility and Respiratory Syndrome (SIRS) Virus	D. Benfield J. Collins D. Hurley	92-37204-8045	\$ 150,000	09/15/92- 09/30/94
Agricultural Expt. Station University of Tennessee Knoxville, TN 37901-1071 Title: The Bovine CD14 Receptor: A Link in Endotoxin-Mediated Macrophage Activation	P. Bochsler	92-37204-7775	\$ 150,000	09/15/92- 09/30/94
Agricultural Expt. Station University of Tennessee Knoxville, TN 37901-1071 Title: Identification of C3 Binding Components that Facilitate Invasion by B. bigemina	S. Kania L. Potgieter	92-37204-8112	\$ 130,000	09/15/92- 09/30/94
Agricultural Expt. Station University of Tennessee Knoxville, TN 37901-1071 Title: Molecular Basis of Endothelial Cell Sensitivity to Lipopolysaccharide	M. Breider R. Carroll	92-37204-8111	\$ 95,000	09/15/92- 09/30/94
Agricultural Expt. Station University of Tennessee Knoxville, TN 37901-1071 Title: Mechanism(s) of Coronavirus RNA Replication and Packaging	D. Brian	92-37204-8046	\$ 200,000	09/15/92- 09/30/95

National Research Initiative Competitive Grants Program
 Mechanisms of Animal Disease

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Texas A&M Research Foundation College Station, TX 77843 Title: Molecular Basis of Exotoxin Activation and Specificity	J. D. Struck R. Young	92-37204-7954	\$ 250,000	09/01/92- 08/31/95
Texas A&M Research Foundation College Station, TX 77843 Title: Regulation of Bovine T Lymphocyte Responses by Mononuclear Phagocytes	R. Smith L. Adams	92-37204-7904	\$ 175,000	09/01/92- 08/31/94
Texas A&M Research Foundation College Station, TX 77843 Title: Survival and Immunogenicity of Avirulent Mutants of <i>Brucella abortus</i>	T. Ficht L. Adams B. Sowa	92-37204-8002	\$ 200,000	09/01/92- 08/31/95
University of Texas Southwestern Medical Center at Dallas Dallas, TX 75235-9073 Title: Endotoxin-Resistant Transgenic Mice	R. Munford	92-37204-8268	\$ 220,000	09/15/92- 09/30/95
University of Texas Southwestern Medical Center at Dallas Dallas, TX 75235-9073 Title: Enhanced Adjuvanticity for Local and Systemic Immunization by Fused Toxin Genes	Y. Kupersztoch J. Kettman	92-37204-8269	\$ 300,000	09/15/92- 09/30/94
Washington State University Pullman, WA 99164-5045 Title: Significance of Conserved Peptide Motifs in Babesial Apical Complex Proteins	G. Palmer T. McElwain	92-37204-8180	\$ 195,000	09/15/92- 09/30/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: Binding of <i>Pasteurella haemolytica</i> Leukotoxin to Bovine Neutrophils	C. Czuprynski	92-37204-7927	\$ 160,000	09/15/92- 09/30/95

National Research Initiative Competitive Grants Program
 Mechanisms of Animal Disease

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Board of Regents University of Wisconsin Madison, WI 53706 Title: Cloning and Sequencing New Antigens for a Bovine Herpesvirus Mucosal Vaccine	G. Letchworth	92-37204-7900	\$ 270,000	09/15/92- 09/30/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: Studies on the Origin and Etiology of Transmissible Mink Encephalopathy	J. Aiken	92-37204-8115	\$ 155,020	09/15/92- 09/30/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: T Lymphocyte Recognition of Brucella Proteins	G. Splitter	92-37204-8114	\$ 200,000	09/15/92- 09/30/94

Total : \$ 9,725,520

PLANT SYSTEMS

Research in the area of Plant Systems addresses basic and mission-oriented issues of importance for improving and sustaining plant production systems and for conservation and proper utilization of naturally occurring plant communities. Grants are awarded under eight programs: Plant Genetic Mechanisms and Molecular Biology, Plant Growth and Development, Photosynthesis/Respiration, Nitrogen Fixation/Metabolism, Plant Pathology/Weed Science, Entomology/Nematology, Alcohol Fuels, and Plant Genome.

PLANT SYSTEMS

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PLANT GENETIC MECHANISMS & MOLECULAR BIOLOGY

This program area supports studies addressing the basic cellular, molecular and genetic processes which contribute new information required for the development of novel approaches to crop and forest improvement. Innovative research is emphasized in the following areas: (1) identification, isolation and characterization of genes and gene products, (2) relationship between gene structure and function, (3) regulatory mechanisms of gene expression, (4) interaction of nuclear and organellar genomes, (5) mechanisms of recombination, transposition and replication, (6) processes controlling regeneration of whole plants from single cells, (7) alteration and use of germplasm resources, and (8) development of methods for identifying or altering important plant characteristics or genes for genetic manipulation.

National Research Initiative Competitive Grants Program
 Plant Genetic Mechanisms and Molecular Biology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Auburn University Auburn University, AL 36849 Title: Isolation & Characterization of Maize Mitochondrial DNA Replication Origin(s)	H. Daniell B. Nielsen	92-37301-7782	\$ 110,000	09/15/92- 09/30/94
University of California, Berkeley Berkeley, CA 94720 Title: Regulation of Tomato Fruit Development and Differentiation by HMG CoA Reductase	W. Gruissem	91-37301-5882++	\$ 78,000	08/01/91- 07/31/93
University of California, Berkeley Berkeley, CA 94720 Title: Phytochrome-regulated phy Gene Expression	P. Quail	92-37301-7678	\$ 195,000	09/01/92- 08/31/95
University of California Davis, CA 95616-8671 Title: Paramutation and Transgene-Elicited Pigmentation Patterns in Petunia	R. Jorgensen	92-37301-7597	\$ 195,000	08/01/92- 07/31/95
University of California Davis, CA 95616-8671 Title: Brassica Genome Evolution	C. Quiros	90-37140-5425	\$ 115,000	09/01/90- 08/31/94
University of California Davis, CA 95616-8671 Title: Targeted Transposon Mutagenesis in Tomato	J. Yoder	90-37262-5322	\$ 60,000	09/01/90- 08/31/93
University of California Riverside, CA 92521 Title: Molecular and Cell Biology of Oil Bodies in Maize and Brassica	A. Huang	91-37301-6370++	\$ 64,000	08/01/91- 07/31/93

++ Continuation Award

National Research Initiative Competitive Grants Program
 Plant Genetic Mechanisms and Molecular Biology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Colorado Colorado Springs, CO 80933 Title: Aminolevulinate Synthesis in Arabidopsis	S. Berry-Lowe	92-37301-7747	\$ 90,000	09/15/92- 09/30/94
The Connecticut Agricultural Experiment Station New Haven, CT 06504 Title: Relationship of Elevated Catalase to O ₂ -Resistant Photosynthesis in C ₃ Plants	I. Zelitch	92-37301-7443	\$ 75,000	09/01/92- 08/31/94
Yale University New Haven, CT 06511 Title: Dissecting Light-Regulated Development in Arabidopsis	X. Deng	92-37301-7706	\$ 108,000	09/15/92- 09/30/94
University of Florida Gainesville, FL 32611 Title: Chromatin Structure and Gene Expression in Plants	R. Ferl	91-37301-6372++	\$ 70,000	09/01/91- 08/31/93
USDA/ARS South Atlantic Area Athens, GA 30613 Title: A Unique Mitochondrial DNA Configuration of a Male-Sterile Sorghum Cytoplasm	D. Pring	92-37301-7444	\$ 90,000	09/01/92- 08/31/94
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Molecular Genetics of De Novo Purine Biosynthesis in Higher Plants	R. Meagher	92-37301-7707	\$ 130,000	09/01/92- 08/31/94
Botanical Society of America Ames, IA 50011 Title: Symposium: Genetics of Economically Important Tropical Plant Species	D. Hauber	92-37301-7632	\$ 2,000	08/01/92- 07/31/93

++ Continuation Award

National Research Initiative Competitive Grants Program
 Plant Genetic Mechanisms and Molecular Biology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Iowa State University of Science and Technology Ames, IA 50011 Title: Molecular Isolation of a Nuclear Restorer Factor for cms-T Maize	P. Schnable R. Wise	92-37301-7702	\$ 120,000	09/01/92- 08/31/94
University of Iowa Iowa City, IA 52242 Title: Assigning Genetic Functions to the B Chromosome of Maize	W. Carlson	92-37301-7679	\$ 92,000	09/15/92- 09/30/94
University of Illinois Urbana, IL 61801 Title: Genomic Affinities in the Genus Glycine Willd.	T. Hymowitz R. Singh	92-37301-7749	\$ 116,000	08/15/92- 08/31/94
University of Illinois Urbana, IL 61801 Title: Intron Recognition in Plants	A. McCullough	92-37301-7964	\$ 70,000	09/15/92- 09/30/94
University of Illinois Urbana, IL 61801 Title: Plant Cytochrome P-450s	M. Schuler	92-37301-7748	\$ 120,000	09/15/92- 09/30/94
University of Kentucky Research Foundation Lexington, KY 40506-0057 Title: In Vitro and in Vivo Studies of mRNA 3' End Formation in Plants	A. Hunt	92-37301-7708	\$ 120,000	09/01/92- 08/31/94
Harvard University Cambridge, MA 02138 Title: Isolation & Analysis of Cell-to-cell Communication Mutations in Pollination	S. Kopczak	92-37301-7851	\$ 58,000	09/01/92- 08/31/94

National Research Initiative Competitive Grants Program
 Plant Genetic Mechanisms and Molecular Biology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
USDA/ARS Beltsville Area Beltsville, MD 20705 Title: Molecular & Functional Analysis of Cellulase & Polygalacturonase Gene Expression	M. Tucker	92-37301-7680	\$ 108,000	09/01/92- 08/31/94
Federation of American Societies of Experimental Biology Bethesda, MD 20814 Title: FASEB Summer Research Conference: Plant Molecular Genetics	R. Horsch	92-37301-7553	\$ 8,000	08/01/92- 07/31/93
Michigan State University East Lansing, MI 48824 Title: Targeting to the Nucleus in Plant Cell	N. Raikhel	92-37301-7709	\$ 80,000	09/15/92- 09/30/94
Michigan Technological University Houghton, MI 49931 Title: Expression of Lignin - Specific Antisense Gene to Regulate Lignin Biosynthesis	V. Chiang G. Podila	92-37301-7598	\$ 105,000	09/01/92- 08/31/94
University of Minnesota Minneapolis, MN 55415 Title: Molecular Genetic Characterization of Maize Acetyl-CoA Carboxylase	B. Gengenbach M. Egli	92-37301-7852	\$ 114,000	09/15/92- 09/30/94
University of Missouri Columbia, MO 65211 Title: Expression of Plant tRNA Genes	W. Folk	92-37301-7783	\$ 125,000	09/01/92- 08/31/94
Washington University St. Louis, MO 63130 Title: Hormonal and Endosperm-Specific Regulation of Genes in Barley	J. Rogers	92-37301-7681	\$ 115,000	08/15/92- 08/31/94

National Research Initiative Competitive Grants Program
 Plant Genetic Mechanisms and Molecular Biology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
North Carolina State University Raleigh, NC 27695 Title: Functional Analysis of Chromosomal Domains in Transgenic Plant Cells	W. Thompson	92-37301-7710	\$ 138,000	09/15/92-09/30/94
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704 Title: Fungal Zoospore Mediated Transfer of Foreign DNA into Plants	A. Mitra W. Langenberg	92-37301-7784	\$ 55,000	09/01/92-08/31/93
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704 Title: Ribonuclease P from the Chloroplast & Nucleus of Chlamydomonas reinhardtii	S. Darr	92-37301-7894	\$ 120,000	09/01/92-08/31/94
Rutgers, The State University Piscataway, NJ 08855-1089 Title: Transduction of Elicitor Signals in Plant Cells	M. Lawton	92-37301-7785	\$ 120,000	09/01/92-08/31/94
Rutgers, The State University Piscataway, NJ 08855-1089 Title: Purification and Characterization of a Salicylic Acid Binding Protein	D. Klessig	92-37301-7599	\$ 105,000	09/15/92-09/30/94
Rutgers, The State University Piscataway, NJ 08855-1089 Title: Molecular Analysis of a Light-Responsive Element	E. Lam	92-37301-7786	\$ 160,000	09/01/92-08/31/94
Cold Spring Harbor Laboratory Cold Spring Harbor, NY 11724 Title: Functional Analysis of AGL1 and AGL2 in a Floral Regulatory Hierarchy	H. Ma	92-37301-7445	\$ 138,000	09/15/92-09/30/94

National Research Initiative Competitive Grants Program
 Plant Genetic Mechanisms and Molecular Biology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station Cornell University Ithaca, NY 14853 Title: A Structural and Transcriptional Analysis of the S-Locus Region of <i>Brassica</i>	J. Nasrallah M. Nasrallah	92-37301-7828	\$ 71,000	09/01/92- 08/31/93
Cornell University Ithaca, NY 14853 Title: Experimental Manipulation of Chloroplast Gene Copy Number in <i>Chlamydomonas</i>	K. Kindle D. Stern	92-37301-7787	\$ 120,000	09/15/92- 09/30/94
Ohio State University Research Foundation Columbus, OH 43210 Title: Molecular Mechanisms of Geminivirus Replication	D. Bisaro	91-37301-6197++	\$ 81,000	09/01/91- 08/31/93
Gordon Res. Conference Kingston, RI 02881 Title: 1992 Gordon Research Conference on Plant Molecular Biology	S. Howell	92-37301-7727	\$ 7,000	08/01/92- 07/31/93
University of Texas Austin, TX 78713-7726 Title: Nature and Function of Meiotic Genetic Elements Concerned with Fertility	M. Maguire	92-37301-7600	\$ 73,000	09/01/92- 08/31/94
University of Texas Austin, TX 78713-7726 Title: Molecular Analysis of Cellulose Biosynthesis in <i>Acetobacter xylinum</i>	R. Brown I. Saxena	90-37262-5520	\$ 90,000	08/01/90- 07/31/93
University of Texas Austin, TX 78712-1111 Title: Splicing and Mobility of Chloroplast Group I Introns	D. Herrin	92-37301-7682	\$ 100,000	09/15/92- 09/30/94

++ Continuation Award

National Research Initiative Competitive Grants Program
 Plant Genetic Mechanisms and Molecular Biology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Texas A&M Research Foundation College Station, TX 77843 Title: Regulation of Patatin Gene Expression in Potato	W. Park	92-37301-7788	\$ 133,000	09/01/92- 08/31/94
Washington State University Pullman, WA 99164-5045 Title: Genetic and Molecular Approaches to Modifying the Composition of Seed Oils	J. Browse	92-37301-7728	\$ 195,000	09/01/92- 08/31/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: Molecular and Biochemical Analysis of Ubiquitin Enzymes in Plants	R. Vierstra	91-37301-6290++	\$ 75,000	07/01/91- 06/30/93
Board of Regents University of Wisconsin Madison, WI 53706 Title: Meiotic Mutants for Exploitation of Solanum Germplasm	S. Peloquin	92-37301-7711	\$ 57,000	08/15/92- 08/30/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: Interactions Between Nuclear and Cytoplasmic Genomes in Maize	J. Coors	92-37301-7853	\$ 55,000	09/15/92- 09/30/94

Total : \$ 4,626,000

++ Continuation Award

PLANT SYSTEMS

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PLANT GROWTH & DEVELOPMENT

This program area supports research aimed at increasing our basic understanding of mechanisms underlying the regulation of plant growth and development in order to achieve optimal productivity of agriculturally important crop plants and forest species. Research areas emphasized by the program include: (1) developmental regulation of gene expression, (2) photomorphogenesis, (3) cell biology including membrane biology, organelle development and cell wall structure, (4) biochemistry of primary and secondary metabolism related to growth and development, (5) hormonal regulation of growth and development, and (6) analysis and control of growth patterns.

National Research Initiative Competitive Grants Program
 Plant Growth & Development

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Arizona State University Tempe, AZ 85287-1903 Title: Peroxisome Membrane Protein Functions During Oilseed Seedling Growth	R. Trelease	92-37304-7755	\$ 130,000	09/01/92- 08/31/94
University of Arizona Tucson, AZ 85721 Title: P-Proteins: Molecular Probes to Analyze Phloem Development	G. Thompson	92-37304-8007	\$ 96,000	09/15/92- 09/30/94
An Individual Awardee Berkeley, CA 94708 Title: Role of Cell Wall Hydrolases in Tomato Flower Abscission	E. del Campillo	92-37304-7865	\$ 93,000	09/15/92- 09/30/94
University of California, Berkeley Berkeley, CA 94720 Title: Mechanism of Adhesion by Fucus Zygote Cell Walls	J. West	92-37304-7864	\$ 140,000	09/01/92- 08/31/94
University of California, Berkeley Berkeley, CA 94720 Title: Physiological & Genetic Analysis of Vegetative & Floral Meristems of Arabidopsis	I. Sussex	92-37304-7935	\$ 140,000	09/01/92- 08/31/94
University of California, Berkeley Berkeley, CA 94720 Title: Calcium Metabolism in Barley Aleurone	R. Jones	92-37304-7909	\$ 95,000	09/15/92- 09/30/94
University of California Davis, CA 95616-8671 Title: Identification of Genes Regulating Pistil Development	C. Gasser	92-37304-7756	\$ 110,000	09/01/92- 08/31/94

National Research Initiative Competitive Grants Program
 Plant Growth & Development

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671 Title: Protein Import into Peroxisomes of Higher Plants	J. Harada	90-37261-5515	\$ 53,000	09/01/90- 08/31/93
University of California Davis, CA 95616-8671 Title: A Component of the Chloroplast Protein Transport Complex	S. Theg	92-37304-8011	\$ 130,000	09/01/92- 08/31/94
University of California Davis, CA 95616-8671 Title: Phytochrome Chromophore Biosynthesis & Holoprotein Assembly	J. Lagarias	92-37304-7887	\$ 205,000	09/01/92- 08/31/95
University of California Davis, CA 95616-8671 Title: Cell Wall Autohydrolysis During Lettuce Seed Germination	D. Nevins K. Bradford	92-37304-8010	\$ 94,000	09/01/92- 08/31/94
An Individual Awardee El Cerrito, CA 94530 Title: Genetic Analysis of the Vegetative to Floral Transition in Tomato	K. Allen	92-37304-8054	\$ 70,000	09/15/92- 09/30/94
The Scripps Research Institute La Jolla, CA 92037 Title: Regulation of a Plasma Membrane H+-ATPase Involved in Nutrient Uptake in Roots	J. Harper	92-37304-7889	\$ 69,000	09/15/92- 09/30/94
University of California, San Diego La Jolla, CA 92093-0003 Title: Anion Channels in Higher Plants	J. Schroeder	92-37304-7757	\$ 65,000	09/01/92- 08/31/93

National Research Initiative Competitive Grants Program
 Plant Growth & Development

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California, San Diego La Jolla, CA 92093-0003 Title: Molecular & Functional Characterization of Tonoplast Intrinsic Protein	M. Chrispeels	92-37304-7934	\$ 140,000	09/01/92- 08/31/94
San Diego State University Foundation San Diego, CA 92182 Title: Molecular Analysis of Brassinolide Action in Plant Growth & Development	S. Clouse	90-37261-5700	\$ 100,000	09/01/90- 08/31/94
University of California Santa Cruz, CA 95064 Title: Ninth International Workshop on Plant Membrane Biology	L. Taiz	92-37304-7555	\$ 10,000	07/15/92- 07/31/93
The Connecticut Agricultural Experiment Station New Haven, CT 06504 Title: Genetic Dissection of Leaf Development	N. McHale	92-37304-7912	\$ 97,500	09/01/92- 08/31/94
Yale University New Haven, CT 06511 Title: Genetic Analysis of Floral Development in Arabidopsis	V. Irish	92-37304-7716	\$ 220,000	09/01/92- 08/31/95
University of Florida Gainesville, FL 32611 Title: The Role of Calcium-Dependent Protein Kinase in Plant Signal Transduction	A. Harmon	91-37304-6654++	\$ 69,000	09/15/91- 09/30/93
University of South Florida Tampa, FL 33620 Title: Plant Nuclear Lamins: Structure and Function in Cell Division	M. Saunders	92-37304-7866	\$ 125,000	09/01/92- 08/31/94

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National Research Initiative Competitive Grants Program
 Plant Growth & Development

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
USDA/ARS South Atlantic Area Athens, GA 30613 Title: Role of Chemotropic Factors & Synergid Calcium in Angiosperm Fertilization	B. Reger R. Chaubal	92-37304-8008	\$ 90,000	09/15/92- 09/30/94
University of Illinois at Chicago Chicago, IL 60680 Title: Isolation of the Blue Light Receptor and the Blue Light Activated G-Protein	L. Kaufman	92-37304-7914	\$ 65,000	09/01/92- 08/31/93
Northern Illinois University DeKalb, IL 60115-2874 Title: Molecular Genetics of Gametophytic Self-Incompatibility in Petunia hybrida	T. Sims	92-37304-8009	\$ 120,000	09/15/92- 09/30/94
USDA/ARS Mid-West Area Peoria, IL 61604 Title: Members of the Stress-70 Family of Proteins as Molecular Chaperones	J. Miernyk	92-37304-7896	\$ 90,000	09/15/92- 09/30/94
USDA/ARS Mid-West Area Peoria, IL 61604 Title: Structural and Functional Roles of Hydroxycinnamic Acids in Developing Plant Cell Walls	J. Ralph R. Hatfield	92-37304-8057	\$ 105,000	09/15/92- 09/30/94
Purdue Research Foundation West Lafayette, IN 47907 Title: Ethylene Biosynthesis & Interorgan Communication During Flower Senescence	W. Woodson	92-37304-7867	\$ 105,000	09/01/92- 08/31/94
Purdue Research Foundation West Lafayette, IN 47907 Title: Plasma Membrane-Cell Wall Adhesion Proteins	N. Carpita L. Dunkle	92-37304-7804	\$ 50,000	09/15/92- 09/30/93

National Research Initiative Competitive Grants Program
 Plant Growth & Development

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Kansas State University Manhattan, KS 66506 Title: Function of Phosphatidylcholine Hydrolysis by Phospholipases D & C in Plants	X. Wang	92-37304-7895	\$ 95,000	09/15/92- 09/30/94
University of Massachusetts Amherst, MA 01003 Title: Cell Division in Plants: The Role of Calcium, Membranes, and the Cytoskeleton	P. Hepler	91-37304-6832++	\$ 74,000	09/01/91- 08/31/93
University of Minnesota Minneapolis, MN 55415 Title: Identification & Cloning of Genes for Plant Microtubule-Associated Proteins	R. Goddard	92-37304-7733	\$ 72,500	09/01/92- 08/31/94
The Regents of the University of Minnesota Minneapolis, MN 55108 Title: Tubulin Gene Expression During Meiosis and Pollen Development in Maize	S. Wick C. Silflow	92-37304-7913	\$ 105,000	09/15/92- 09/30/94
University of Missouri Columbia, MO 65211 Title: Growth and Morphogenesis in Arabidopsis Roots	T. Baskin	92-37304-7868	\$ 109,000	09/01/92- 08/31/94
Washington University St. Louis, MO 63130 Title: Hydroxyproline-Rich Glycoproteins: Sequences and Cell-Wall Localization	U. Goodenough	92-37304-7936	\$ 105,000	09/01/92- 08/31/94
University of North Carolina Chapel Hill, NC 27599-3280 Title: Phytochrome-regulated Growth	A. Jones	92-37304-7871	\$ 140,000	09/01/92- 08/31/94

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National Research Initiative Competitive Grants Program
 Plant Growth & Development

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Duke University Durham, NC 27706 Title: Gibberellin Regulated Growth & Development in Arabidopsis	T. Sun	92-37304-7938	\$ 110,000	09/01/92- 08/31/94
North Carolina State University Raleigh, NC 27695-7003 Title: Functional Analysis of b-70, a Maize Homolog of BiP-GRP78	R. Boston	91-37304-5842++	\$ 67,000	09/01/91- 08/31/93
North Carolina State University Raleigh, NC 27695-7003 Title: Role of an Opaque-2 Regulated Ribosome Inactivating Protein (RIP) in Maize Seed	R. Boston	92-37304-7939	\$ 123,000	09/15/92- 09/30/94
State University of New York, Albany Albany, NY 12201 Title: Pollen Development & the Relevance of Heat Shock Proteins	J. Mascarenhas	92-37304-7869	\$ 113,000	09/01/92- 08/31/94
New York University New York, NY 10003 Title: International Symposium on the Molecular Genetics of Root Development	P. Benfey	92-37304-7870	\$ 2,000	09/01/92- 08/31/93
University of Rochester Rochester, NY 14627-0140 Title: Genetics of Female Gametogenesis in Arabidopsis thaliana	A. Ray	92-37304-7966	\$ 110,000	09/15/92- 09/30/94
Bowling Green State University Bowling Green, OH 43403 Title: Molecular Analysis & Physiological Function of the Soybean Leaf Metalloproteinase	J. Graham	92-37304-8055	\$ 110,000	09/15/92- 09/30/94

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National Research Initiative Competitive Grants Program
Plant Growth & Development

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Case Western Reserve University Cleveland, OH 44106 Title: Organization and Regulation of Anthranilate Synthase in Arabidopsis	C. Town	92-37304-7872	\$ 96,000	09/01/92- 08/31/94
Miami University Oxford, OH 45056 Title: Fatty Acid Elongases from Developing Seeds of Brassica napus	J. Jaworski	92-37304-7967	\$ 102,000	09/15/92- 09/30/94
Oregon State University Corvallis, OR 97331 Title: Molecular Dissection of Auxin Using an Auxin Receptor Mutant of Tomato	D. Rayle T. Lomax	90-37261-5779	\$ 16,000	09/01/90- 08/31/93
The Reed Institute Portland, OR 97202 Title: Regulation of Epidermal Cell Interactions in the Arabidopsis Fiddlehead Mutant	S. Lolle	92-37304-8131	\$ 120,000	09/01/92- 08/31/94
University of Pennsylvania Philadelphia, PA 19104 Title: Genetic Analysis of Root Hair Development in Arabidopsis thaliana	R. Poethig	91-37304-5977++	\$ 65,000	09/01/91- 08/31/93
University of Pennsylvania Philadelphia, PA 19104 Title: Analysis of Blue Light-mediated Signal Transduction in Arabidopsis thaliana	A. Cashmore	92-37304-7937	\$ 95,000	09/01/92- 08/31/94
Swarthmore College Swarthmore, PA 19081 Title: The NPA Receptor: Characterization, Natural Ligands and Mechanism of Action	M. Jacobs	92-37304-7873	\$ 110,000	09/01/92- 08/31/94

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National Research Initiative Competitive Grants Program
 Plant Growth & Development

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Pennsylvania State University University Park, PA 16802 Title: Analysis of Mutations Altering the Arabidopsis Shoot Apical Meristem	J. Medford	92-37304-7940	\$ 90,000	09/01/92- 08/31/94
University of Tennessee Knoxville, TN 37996-0140 Title: Modulation of Plant Calmodulin Methylation & Calmodulin-target Proteins	D. Roberts	92-37304-7874	\$ 209,000	09/01/92- 08/31/95
Texas A&M Research Foundation College Station, TX 77843 Title: Control of Gene Expression by Phytohormones in Tomato Seedling Roots	B. Taylor	92-37304-7968	\$ 90,000	09/01/92- 08/31/94
Texas A&M Research Foundation College Station, TX 77843 Title: Genetic Dissection of Abscisic Acid Biosynthesis in Maize Caryopses	J. Smith	92-37304-8056	\$ 95,000	09/01/92- 08/31/94
Washington State University Pullman, WA 99164-5045 Title: Suberin Biosynthesis & Structure: A New Approach	N. Lewis M. Bernards	92-37304-7892	\$ 100,000	09/01/92- 08/31/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: Characterization of Calcium Dependent Protein Kinase Isoforms In Arabidopsis	M. Sussman	92-37304-8058	\$ 160,000	09/15/92- 09/30/95

Total : \$ 5,560,000

PLANT SYSTEMS

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PHOTOSYNTHESIS/RESPIRATION

Towards expanding our knowledge of fundamental aspects of energy capture and utilization by plants, research funded by this program extends from studies on solar energy absorption to analyses of crop productivity. Research supported includes studies on primary events of light absorption, energy transduction and utilization; structure, synthesis, turnover and interactions of components of the photosynthetic and respiratory systems; mechanisms of carbon dioxide absorption and fixation; metabolism and biochemistry of energy-rich compounds; and translocation and partitioning of photosynthates in the whole plant.

National Research Initiative Competitive Grants Program
 Photosynthesis/Respiration

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station University of Arkansas Fayetteville, AR 72701 Title: Protein - Protein Interactions in Photosynthesis	D. Davis	92-37306-7688	\$ 110,000	08/15/92- 08/31/94
Arizona State University Tempe, AZ 85287-1903 Title: Specific Mutagenesis of the CF1 Beta Subunit in Chlamydomonas r.	W. Frasch	92-37306-7724	\$ 110,000	08/15/92- 08/31/94
University of California Davis, CA 95616-8671 Title: Magnetic Properties of the Photosynthetic Oxygen Evolving Complex	R. Britt	92-37306-7689	\$ 120,000	08/15/92- 08/31/94
University of California Los Angeles, CA 90024-1406 Title: Steps in the in vivo Synthesis of Plastocyanin	S. Merchant	91-37306-6348++	\$ 55,000	08/01/91- 07/31/93
University of Connecticut Storrs, CT 06269-2086 Title: Spectroscopic Studies of Crystallized Bacterial Pigment-Protein Complexes	H. Frank	92-37306-7690	\$ 100,000	08/15/92- 08/31/94
University of Connecticut Storrs, CT 06269-2086 Title: The Role of Cell Wall Bound Invertase in Photosynthatae Partitioning	J. Gogarten M. Lynes	92-37306-7691	\$ 100,000	09/01/92- 08/31/94
University of Florida Gainesville, FL 32611 Title: CO2 Concentrating Mechanisms in Photosynthesis	G. Bowes	91-37306-6000++	\$ 50,000	09/01/91- 08/31/93

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National Research Initiative Competitive Grants Program
 Photosynthesis/Respiration

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Iowa State University of Science and Technology Ames, IA 50011 Title: Chlamydomonas Mutants Defective in the CO ₂ -Concentrating System	M. Spalding L. Marek	91-37306-6315	\$ 120,000	07/01/91- 06/30/94
USDA/ARS Mid-West Area Peoria, IL 61604 Title: The Proton-Sucrose Symport	D. Bush	91-37306-6001++	\$ 50,000	08/01/91- 07/31/93
University of Illinois Urbana, IL 61801 Title: Molecular Biochemistry of Herbicide Resistance	C. Wraight	92-37306-7692	\$ 75,000	09/01/92- 08/31/93
Kansas State University Manhattan, KS 66506 Title: Interaction of Photosystem I with its Electron Donor and Acceptor	P. Chitnis	92-37306-7661	\$ 120,000	09/01/92- 08/31/94
Massachusetts General Hospital Boston, MA 02114 Title: Molecular Mechanisms of Maize C4PPDK Gene Regulation	J. Sheen	91-37306-6352++	\$ 55,000	09/01/91- 08/31/93
Harvard University Cambridge, MA 02138 Title: Control of cab Gene Expression in Maize Mesophyll and Bundle Sheath Cells	L. Bogorad	92-37306-7693	\$ 90,000	09/01/92- 08/31/94
University of Michigan Ann Arbor, MI 48109 Title: Inorganic Biochemistry of Photosynthetic Oxygen Evolution	C. Yocum	92-37306-7662	\$ 175,000	09/15/92- 09/30/95

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National Research Initiative Competitive Grants Program
 Photosynthesis/Respiration

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Michigan State University East Lansing, MI 48824 Title: Charge Separation and Stabilization in Chloroplast Photosystem II	G. Babcock	92-37306-7694	\$ 50,000	09/01/92- 08/31/93
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704 Title: Molecular-Genetic/Biochemical Studies of C4 PEPC & PPDK Phosphorylation Cycles	R. Chollet	92-37306-7816	\$ 120,000	09/01/92- 08/31/94
Rutgers, The State University Piscataway, NJ 08855-1089 Title: A Chloroplast Envelope K Channel & Cation Pump: A System Regulating Photosynthesis	G. Berkowitz	92-37306-7818	\$ 120,000	09/01/92- 08/31/94
Rutgers, The State University Piscataway, NJ 08855-1089 Title: Regulation of Sucrose Synthesis & Coordination with Photosynthesis	J. Daie	92-37306-7817	\$ 110,000	09/15/92- 09/30/94
Cornell University Ithaca, NY 14853 Title: Nonlinear Optical Studies of Energy and Electron Transfer Dynamics in Photosynthetic Systems	A. Albrecht	92-37306-7695	\$ 120,000	08/15/92- 08/31/94
Cornell University Ithaca, NY 14853 Title: Synthesis of Export Sugars in Leaves of Cucurbita Pepo	R. Turgeon	92-37306-7819	\$ 100,000	09/01/92- 08/31/94
University of Rochester Rochester, NY 14627-0140 Title: Studies of Excitation Transfer in Photosynthetic Antenna Structures	R. Knox	92-37306-7696	\$ 90,000	09/01/92- 08/31/94

National Research Initiative Competitive Grants Program
Photosynthesis/Respiration

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Rensselaer Polytechnic Institute Troy, NY 12180-3590 Title: Studies of the Role of Molecular Chaperones in Oligomeric Protein Assembly	H. Roy	91-37306-6708	\$ 100,000	09/01/91- 08/31/94
University of Dayton Dayton, OH 45469 Title: Regulation of Photosynthesis in Response to Light and CO ₂	J. Servaiteis	92-37306-7697	\$ 100,000	09/15/92- 09/30/94
Oklahoma State University Stillwater, OK 74078 Title: Mutational Analysis of the Manganese-Stabilizing Protein of PSII	R. Burnap	92-37306-7820	\$ 110,000	09/01/92- 08/31/94
Clemson University Clemson, SC 29634-5326 Title: Structure/Function Investigation on the Carboxysome-a Prokaryotic Organelle	J. Shively	92-37306-7663	\$ 120,000	08/01/92- 07/31/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: Mutations Affecting Photosynthetic Cytochrome Synthesis	T. Donohue	90-37262-5588	\$ 120,000	09/01/90- 08/31/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: Studies on the Redox Regulation of Chloroplast Coupling Factor 1 (CFL)	B. Selman	92-37306-7698	\$ 120,000	09/01/92- 08/31/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: Structure-Function Relationships in Photosynthetic Electron Transport	J. Markley	92-37306-7699	\$ 110,000	08/15/92- 08/31/94

Total : \$ 2,820,000

PLANT SYSTEMS

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NITROGEN FIXATION/METABOLISM

Grants in this program support research which will improve our understanding of how nitrogen is fixed biologically, metabolized and cycled by crop plants. These goals are of importance to sustainable plant production, since availability of nitrogen is a common limiting factor in plant growth, and because of costs associated with application of nitrogen fertilizers. Areas supported by the program include, but are not limited to: chemistry of biological nitrogen fixation; factors limiting biological nitrogen fixation; plant-microbe interactions involved in establishing and maintaining the biological-nitrogen fixation symbioses; ecology of free-living and symbiotic nitrogen-fixing microorganisms, and metabolism of nitrogenous compounds by higher plants.

National Research Initiative Competitive Grants Program
Nitrogen Fixation/Metabolism

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Arizona Tucson, AZ 85721 Title: Cellular Responses to and Excretion of Ammonium in <i>Azotobacter vinelandii</i>	C. Kennedy	92-37305-7888	\$ 100,000	09/01/92- 08/31/94
University of California Los Angeles, CA 90024 Title: Function of the Early Nodulin ENOD2 in Alfalfa Nodule Morphogenesis	K. Wycoff A. Hirsch	92-37305-7717	\$ 60,000	09/01/92- 08/31/94
USDA/ARS South Atlantic Area Athens, GA 30613 Title: Genetic Regulation of Alternative N2 Fixation Systems in <i>Azotobacter vinelandii</i>	P. Bishop	92-37305-7722	\$ 140,000	09/15/92- 09/30/94
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Transcriptional Activation at the Dicarboxylate Transport Gene of <i>Rhizobium</i>	T. Hoover	92-37305-7807	\$ 140,000	09/01/92- 08/31/94
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Sulfur Requirements for N2-Fixation: Role of <i>nifP</i> in <i>Azotobacter chroococcum</i>	R. Robson	92-37305-7805	\$ 116,000	09/01/92- 08/31/94
University of Hawaii, Manoa Honolulu, HI 96822 Title: Genetics of Nodulation Competitiveness in <i>Rhizobium Leguminosarum</i> BV. Phaseoli	D. Borthakur	92-37305-7875	\$ 120,000	09/01/92- 08/31/94
Northwestern University Evanston, IL 60201 Title: Single-Crystal and Solution ENDOR Studies of Nitrogenase	B. Hoffman	91-37305-5999++	\$ 50,000	09/01/91- 08/31/93

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National Research Initiative Competitive Grants Program
 Nitrogen Fixation/Metabolism

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Kansas State University Manhattan, KS 66506 Title: Mutations Affecting the Fe Protein of <i>Klebsiella pneumoniae</i> Nitrogenase	L. Davis	92-37305-7718	\$ 100,000	09/01/92-08/31/94
Kansas State University Manhattan, KS 66506 Title: Regulation of Glutamine Synthetase in Legumes	P. Wong	92-37305-7734	\$ 100,000	09/01/92-08/31/94
Boston College Chestnut Hill, MA 02167 Title: Proteins in the Oxygen Barrier of Alfalfa Root Nodules	M. Dunn	92-37305-7719	\$ 60,000	09/01/92-08/31/94
USDA/ARS Beltsville Area Beltsville, MD 20705 Title: Cytochromes P-450 of <i>Bradyrhizobium</i>	D. Keister R. Tully	92-37305-7808	\$ 120,000	09/01/92-08/31/94
University of Maine Orono, ME 04469-5715 Title: Nitrogen Fixation in Actinorhizal Plants: Regulation of Oxygen	J. Tjepkema	92-37305-7758	\$ 60,000	09/01/92-08/31/94
Michigan State University East Lansing, MI 48824 Title: Nod- Dependent Root Hair Deforming and Nodule Initiating Factors from <i>Rhizobium</i>	F. Dazzo R. Hollingsworth	92-37305-7720	\$ 110,000	08/15/92-08/31/94
Michigan State University East. Lansing, MI 48824 Title: Cis-Acting Elements and Trans-Acting Factors Involved in Nodulin Gene Regulation	F. de Bruijn	92-37305-7735	\$ 140,000	09/01/92-08/31/94

National Research Initiative Competitive Grants Program
Nitrogen Fixation/Metabolism

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Minnesota Minneapolis, MN 55415 Title: 14th North American Symbiotic Nitrogen Fixation Conference	P. Graham M. Sadowsky	92-37305-7809	\$ 10,000	09/01/92- 08/31/93
University of Minnesota Minneapolis, MN 55415 Title: Isolation & Characterization of Ammonia Monoxygenase of Nitrosomonas	A. Hooper	92-37305-7811	\$ 100,000	09/01/92- 08/31/94
University of Minnesota Minneapolis, MN 55415 Title: Expression of Maize Glutamine Synthetase Genes	D. Snustad	92-37305-7810	\$ 100,000	09/01/92- 08/31/94
University of Minnesota Minneapolis, MN 55415 Title: Genes Regulating Nitrate Assimilation in Chlamydomonas reinhardtii	P. Lefebvre	90-37262-5759	\$ 100,000	09/01/90- 08/31/94
University of Missouri Columbia, MO 65211 Title: Role of nolB in Cultivar-specific Nodulation of Soybean by Rhizobium fredii	S. Pueppke H. Krishnan	90-37262-5780	\$ 140,000	09/15/90- 09/30/94
University of Missouri Columbia, MO 65211 Title: Genetic Dissection of Soybean Nitrogen Metabolism	J. Polacco M. Holland	92-37305-7876	\$ 50,000	09/01/92- 08/31/93
Washington University St. Louis, MO 63130 Title: Phenotypic Importance to Two Stressed Legumes of Proline Oxidation by Bacteroids	D. Kohl G. Shearer	92-37305-7721	\$ 80,000	09/01/92- 08/31/94

National Research Initiative Competitive Grants Program
Nitrogen Fixation/Metabolism

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Dartmouth College Hanover, NH 03755 Title: Use of TnphoA to Identify Two Important Classes of Genes in <i>B. japonicum</i>	H. Kurtz	92-37305-7812	\$ 60,000	09/01/92- 08/31/94
Board of Regents New Mexico State University Las Cruces, NM 88003 Title: Regulation of Glutamine Synthetase Gene Expression in Root Nodules of Alfalfa	C. Sengupta-Gopalan	92-37305-7941	\$ 100,000	09/01/92- 08/31/94
Ohio State University Research Foundation Columbus, OH 43210 Title: Control of Nitrogen Assimilation Genes in Root Nodules	D. Verma	92-37305-7813	\$ 100,000	09/15/92- 09/30/94
Oregon State University Corvallis, OR 97331 Title: Nitrification: Investigations of Ammonia Monoxygenase	D. Arp M. Hyman	92-37305-7891	\$ 80,000	09/01/92- 08/31/94
Pennsylvania State University University Park, PA 16802 Title: Biosynthesis and Molecular Regulation of Amino Acids in Plants Symposium Support	J. Shannon H. Flores	92-37305-7618	\$ 4,000	07/15/92- 07/31/93
University of Tennessee Knoxville, TN 37996-0140 Title: Structure, Function and Regulation of Soybean Nodulin 26	D. Roberts	91-37305-6752++	\$ 50,000	09/01/91- 08/31/93
University of Tennessee Knoxville, TN 37996-0140 Title: Genetic Regulation of the Nodulation Genes of <i>Bradyrhizobium japonicum</i>	G. Stacey	92-37305-7814	\$ 140,000	09/01/92- 08/31/94

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National Research Initiative Competitive Grants Program
 Nitrogen Fixation/Metabolism

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Texas A&M Research Foundation College Station, TX 77843 Title: Regulation of Cyanobacterial Heterocyst and Nitrogen-Fixation Genes	J. Golden	91-37305-6706++	\$ 50,000	09/01/91- 08/31/93
Texas A&M Research Foundation College Station, TX 77843 Title: Plant Cell Wall Biogenesis & Specialization During Symbiosis	K. VandenBosch	92-37305-7815	\$ 55,000	09/01/92- 08/31/95
Washington State University Pullman, WA 99164-5045 Title: Rhizobium Amino Acid Metabolism and Symbiotic Nitrogen Fixation	M. Kahn	92-37305-7723	\$ 55,000	09/01/92- 08/31/93
University of Washington Seattle, WA 98195 Title: Genetics and Regulation of Nitrogen Fixation in a Methanogenic Archaebacterium	J. Leigh	92-37305-7965	\$ 100,000	09/01/92- 08/31/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: Characterization of Altered Forms of the Molybdenum-Iron Protein of Nitrogenase	P. Ludden V. Shah	91-37305-5970++	\$ 50,000	09/01/91- 08/31/93
Marquette University Milwaukee, WI 53233 Title: Symbiotic Physiology of Rhizobium Lipopolysaccharide	K. Noel	92-37305-7877	\$ 100,000	09/15/92- 09/30/94

Total : \$ 2,940,000

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PLANT SYSTEMS

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PLANT PATHOLOGY/WEED SCIENCE

Research grants in this program support studies on stress on plants arising from their interactions with other plants, and other microbial agents including fungi, bacteria, viruses, and mycoplasma-like organisms. The ultimate goal is to reduce losses in plant productivity from damage caused by biologically-generated stresses.

Emphasis in this area is on studies that will enhance understanding of how stressful interactions are established between plants and other biological agents; how such interactions are influenced by environment and other factors inherent to the interacting organisms; how the interactions reduce plant productivity and usefulness to people; how plants react to stress generated by such interactions; and how the damage of such interactions may be reduced or eliminated.

National Research Initiative Competitive Grants Program
 Plant Pathology/Weed Science

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Auburn University Auburn University, AL 36849 Title: Cloning and Characterization of a Chitinase/lysozyme Constitutively Expressed in Black Rot Resistant Cabbage Variety	S. Tuzun J. Shaw	92-37303-7558	\$ 100,000	09/01/92- 08/31/94
Auburn University Auburn University, AL 36849 Title: Induction of Systemic Disease Resistance by Rhizobacteria	J. Kloepper S. Tuzun	92-37303-7556	\$ 120,000	09/01/92- 08/31/94
The Board of Trustees University of Arkansas Fayetteville, AR 72701 Title: Genetic and Molecular Population Diversity in Colletotrichum	J. Correll G. Weidemann T. Morelock D. Rhoads	92-37303-8006	\$ 43,200	09/15/92- 09/30/93
University of Arizona Tucson, AZ 85721 Title: Expression of Microbial Biological Control Genes in the Rhizosphere	L. Pierson	92-37303-7610	\$ 50,000	08/01/92- 07/31/93
University of Arizona Tucson, AZ 85721 Title: Molecular Genetics of Cultivar Specificity in Magnaporthe grisea	M. Orbach	92-37303-7794	\$ 165,000	09/01/92- 08/31/95
Agricultural Expt. Station University of Arizona Tucson, AZ 85721 Title: Pathogenicity Gene on Dispensable Chromosomes	H. VanEtten	91-37303-5942++	\$ 40,000	07/01/91- 06/30/93
University of Arizona Tucson, AZ 85721 Title: Living Cells Shed from the Root Cap: Impact on Plant-Microbe Interactions	M. Hawes	92-37303-7795	\$ 130,000	09/01/92- 08/31/95

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National Research Initiative Competitive Grants Program
 Plant Pathology/Weed Science

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California, Berkeley Berkeley, CA 94720 Title: Molecular Analysis of Stable Disease Resistance in <i>Xanthomonas</i> - Pepper Interactions	B. Staskawicz	92-37303-7611	\$ 165,000	08/01/92- 07/31/94
University of California, Berkeley Berkeley, CA 94720 Title: Molecular Basis of Host-Pathogen Signalling in <i>Pseudomonas</i> -Plant Interactions	N. Panopoulos	92-37303-7712	\$ 120,000	09/01/92- 08/31/94
University of California, Berkeley Berkeley, CA 94720 Title: In Situ Regulation and Effects of Auxin Production by <i>Erwinia herbicola</i> Strains on Epiphytic Fitness	S. Lindow	92-37303-7751	\$ 70,000	09/01/92- 08/31/94
University of California, Berkeley Berkeley, CA 94720 Title: Properties of Genes Involved in Movement of Barley Stripe Mosaic Virus	A. Jackson	92-37303-7860	\$ 150,000	09/01/92- 08/31/94
University of California Davis, CA 95616-8671 Title: Characterization of Maize Stripe Virus Infections of Plant & Insect Hosts	B. Falk	90-37262-5323	\$ 120,000	07/01/90- 08/31/94
University of California Riverside, CA 92521 Title: Identification and Isolation of Pathogenicity Genes from <i>Colletotrichum magna</i>	R. Rodriguez	92-37303-7713	\$ 100,000	09/01/92- 08/31/94
Colorado State University Ft. Collins, CO 80523 Title: Role of Sucrase in Virulence of <i>Clavibacter michiganense</i> subsp. <i>sepedonicum</i>	C. Ishimaru	92-37303-7560	\$ 77,000	08/01/92- 07/31/94

National Research Initiative Competitive Grants Program
 Plant Pathology/Weed Science

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Florida Gainesville, FL 32611 Title: MtDNA Divergence in Pythium and Selection of DNA Markers for Isolate Identification	F. Martin	92-37303-7557	\$ 98,000	08/01/92- 07/31/94
University of Florida Gainesville, FL 32611 Title: Structure-Function Relationships of Tobamovirus-Plant Interactions	W. Dawson J. Culver	92-37303-7752	\$ 165,000	09/01/92- 08/31/94
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Environmentally Sensitive Network Regulating Virulence of <i>Pseudomonas solanacearum</i>	T. Denny M. Schell	92-37303-7753	\$ 120,000	09/01/92- 08/31/94
Iowa State University of Science and Technology Ames, IA 50011 Title: Mapping Quantitative Trait Loci for Pathogenicity in <i>Cochliobolus heterostrophus</i>	C. Bronson	92-37303-7561	\$ 100,000	07/15/92- 07/31/94
University of Idaho Moscow, ID 83843 Title: Biochemistry and Genetics of Sulfonylurea-Insensitive Acetolactate Synthase	C. Eberlein	91-37303-6697++	\$ 50,000	09/15/91- 09/30/93
Purdue Research Fdn. West Lafayette, IN 47907 Title: Population Dynamics and Pathotype Evolution in the Rice Blast Fungus in the USA	M. Levy J. Hamer	92-37303-7796	\$ 140,000	09/01/92- 08/31/95
Purdue Research Foundation West Lafayette, IN 47907 Title: Determining the Basis of BYDV Vector Transmission Specificity	M. Young	92-37303-7714	\$ 150,000	08/15/92- 08/31/95

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National Research Initiative Competitive Grants Program
Plant Pathology/Weed Science

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Kansas State University Manhattan, KS 66506 Title: Analysis of the Rpl Locus of Maize	S. Hulbert	91-37303-5883++	\$ 34,000	08/01/91-07/31/93
Kansas State University Manhattan, KS 66506 Title: The Role of avrXa10 in Host Recognition of a Bacterial Pathogen of Rice	F. White J. Leach	92-37303-8319	\$ 70,000	09/15/92-09/30/93
University of Kentucky Research Foundation Lexington, KY 40506-0057 Title: Natural and Modified Grass Endophytes as Agents for Biological Protection	C. Schardl M. Siegel L. Bush	92-37303-7612	\$ 58,600	08/01/92-07/31/93
University of Kentucky Research Foundation Lexington, KY 40506-0057 Title: Potyvirus Replication and Pathogenicity	J. Shaw P. Klein A. Hunt	90-37262-5519	\$ 165,000	09/01/90-08/31/94
USDA/ARS Beltsville Area Beltsville, MD 20705 Title: Genetic and Structural Determinants of Viroid-Host Interaction	R. Owens R. Hammond	91-37303-6649++	\$ 60,000	09/15/91-09/30/93
Michigan State University East Lansing, MI 48824 Title: In vitro Analysis of Plant-Pathogenic Mycoplasmalike Organisms	B. Sears K. Klomparens	92-37303-7684	\$ 120,000	09/01/92-08/31/94
Michigan State University East Lansing, MI 48824 Title: Respiratory Defects in Hypovirulent Strains of <i>Cryphonectria parasitica</i>	D. Fulbright H. Bertrand	92-37303-7754	\$ 120,000	09/01/92-09/30/94

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National Research Initiative Competitive Grants Program
 Plant Pathology/Weed Science

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Michigan State University East Lansing, MI 48824 Title: Characterization of the Sesquiterpene Cyclase From Potato	M. Zook	92-37303-7897	\$ 70,000	09/15/92- 09/30/94
University of Missouri Columbia, MO 65211 Title: Complementation and Recombination Between CaMV and Transgenic Nicotiana bigelovii	J. Schoelz	92-37303-7862	\$ 90,000	09/01/92- 08/31/94
University of Missouri Columbia, MO 65211 Title: Genetic and Population Interactions Among Related Fungal Pathogens of Tomato	J. English J. Schoelz	92-37303-7861	\$ 90,000	09/01/92- 08/31/94
Montana State University Bozeman, MT 59717 Title: Molecular Mechanisms of Dormancy Expression in Avena fatua	W. Dyer	92-37303-7614	\$ 100,000	09/01/92- 08/31/94
University of Montana Missoula, MT 59812 Title: Physiological Genetics of Disease Resistance in Brassica	T. Mitchell-Olds	92-37303-7613	\$ 120,000	08/01/92- 07/31/94
North Carolina State University Raleigh, NC 27695-7003 Title: Genetic and Molecular Characterization of Aflatoxin Biosynthesis	G. Payne C. Woloshuk	92-37303-7686	\$ 180,000	08/15/92- 08/31/94
North Carolina State University Raleigh, NC 27695-7003 Title: Spatial and Temporal Dynamics of Phytophthora Epidemics in Bell Pepper	J. Ristaino C. Campbell M. Gumpertz	92-37303-7715	\$ 100,000	08/15/92- 08/31/94

National Research Initiative Competitive Grants Program
Plant Pathology/Weed Science

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Dartmouth College Hanover, NH 03755 Title: Porphyrin Synthesis and Differential Susceptibility to Photobleaching Herbicides	N. Jacobs S. Duke	92-37303-7660	\$ 120,000	09/01/92- 08/31/94
Board of Regents New Mexico State University Las Cruces, NM 88003 Title: Mechanism of Auxin-like Herbicide Resistance in Yellow Starthistle	T. Sterling N. Lownds	92-37303-7863	\$ 50,000	09/01/92- 08/31/93
State University of New York Buffalo, NY 14260 Title: Cloning and Expression of <i>Ustilago maydis</i> Virus Toxin Genes	J. Bruenn	92-37303-8310	\$ 10,000	09/15/92- 09/30/93
Cornell University Ithaca, NY 14853 Title: Transmission of Hypovirulence in Populations of <i>Cryphonectria parasitica</i>	M. Milgroom	91-37303-5939++	\$ 34,000	08/01/91- 07/31/93
Agricultural Expt. Station Cornell University Ithaca, NY 14853 Title: Plant-inducible Pectate Lyase Isozymes and Virulence of <i>Erwinia chrysanthemi</i>	A. Collmer	91-37303-6321++	\$ 60,000	07/01/91- 06/30/93
Cornell University Ithaca, NY 14853 Title: Mechanism of Paraquat Resistance in <i>Hordeum glaucum</i>	J. DiTomaso J. Hart L. Kochian	92-37303-7615	\$ 150,000	08/01/92- 07/31/94
Agricultural Expt. Station Cornell University Ithaca, NY 14853 Title: Viral Non-Structural Gene-Mediated Resistance in Two Virus/Host Systems	M. Zaitlin J. Carr	92-37303-7685	\$ 180,000	09/01/92- 08/31/94

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National Research Initiative Competitive Grants Program
 Plant Pathology/Weed Science

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station Cornell University Ithaca, NY 14853 Title: Genetic Basis of Fungal Adherence & Biocontrol Activity in the Bacterium, <i>Enterobacter cloacae</i>	E. Nelson A. Maloney	92-37303-7798	\$ 55,000	08/15/92- 08/31/93
Agricultural Expt. Station Cornell University Ithaca, NY 14853 Title: Interspecific Mating by Transfer of Mating Type Genes Between <i>Cochliobolus</i> spp.	B. Turgeon O. Yoder	92-37303-7800	\$ 70,000	09/01/92- 08/31/93
Agricultural Expt. Station Cornell University Ithaca, NY 14853 Title: Mechanisms of Resistance Breakage by Cucumber Mosaic Virus	P. Palukaitis	92-37303-7799	\$ 100,000	09/01/92- 08/31/94
Ohio State University Research Foundation Columbus, OH 43210 Title: Dispersal of Two Fungal Pathogens of Strawberry by Rain Splash	L. Madden M. Ellis	91-37303-5857++	\$ 50,000	07/01/91- 06/30/93
Ohio State University Research Foundation Columbus, OH 43210 Title: Cellular Signals Regulating Alternative Phenylpropanoid Defense Responses in Soybean	T. Graham	92-37303-7801	\$ 100,000	09/01/92- 08/31/94
Agricultural Expt. Station Oklahoma State University Stillwater, OK 74078 Title: Role of Surface Proteins in Transmission of Spiroplasmas by Leafhoppers	J. Fletcher M. Shaw A. Wayadande	92-37303-7802	\$ 110,000	09/01/92- 08/31/95
Oregon State University Corvallis, OR 97331 Title: Molecular Cloning of a Pathogenicity Gene from <i>Pyrenophora tritici-repentis</i>	L. Ciuffetti	91-37303-5980++	\$ 34,000	09/01/91- 08/31/93

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National Research Initiative Competitive Grants Program
 Plant Pathology/Weed Science

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Oregon State University Corvallis, OR 97331 Title: Stripe Rust as an Influence on the Temporal Dynamics of Wheat Mixtures	C. Mundt	91-37303-6700++	\$ 50,000	09/15/91-09/30/93
Oregon State University Corvallis, OR 97331 Title: A Plus Sense RNA-based Virus Resistance Strategy	W. Dougherty	92-37303-7893	\$ 70,000	09/01/92-08/31/93
Oregon State University Corvallis, OR 97331 Title: Studies on Plant Viral Genes Necessary for RNA Replication	T. Dreher	92-37303-8229	\$ 100,000	09/15/92-09/30/94
USDA/ARS North Atlantic Area Philadelphia, PA 19118 Title: Molecular and Cellular Determinants of Aphid-Specific Luteovirus Transmission	S. Gray F. Gildow	92-37303-7797	\$ 150,000	09/01/92-08/31/94
Texas Tech University Lubbock, TX 79409-1035 Title: Uptake of Pectin Breakdown Products in Bacterial Phytopathogenicity	M. San Francisco	92-37303-7617	\$ 120,000	08/01/92-07/31/94
Washington State University Pullman, WA 99164-5045 Title: Genetic Analysis of Syringomycin Production by <i>Pseudomonas syringae</i>	D. Gross	92-37303-7732	\$ 120,000	09/01/92-10/31/94
Washington State University Pullman, WA 99164-5045 Title: Genetic & Molecular Analysis of Sporulation in <i>Magnaporthe grisea</i>	H. Leung	92-37303-7803	\$ 100,000	09/01/92-08/31/94

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National Research Initiative Competitive Grants Program
 Plant Pathology/Weed Science

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Washington Seattle, WA 98195 Title: Risk Assessment of Transgenic Gene Escape: A Case Study Using Cotton	P. Kareiva	92-37303-7687	\$ 98,200	08/15/92- 08/31/94
University of Washington Seattle, WA 98195 Title: 6th Meeting of the International Society of Plant-Microbe Interactions	E. Nester	92-37303-7616	\$ 8,000	08/15/92- 08/31/93
Board of Regents University of Wisconsin Madison, WI 53706 Title: Bacterial Community Dynamics in the Phyllosphere	S. Hirano	91-37303-6573++	\$ 60,000	09/01/91- 08/31/93
Board of Regents University of Wisconsin Madison, WI 53706 Title: Characterization of a Glucosyltransferase Involved in Herbicide Detoxification	N. Balke	92-37303-7559	\$ 120,000	07/15/92- 07/31/94

Total : \$ 5,770,000

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PLANT SYSTEMS

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ENTOMOLOGY/NEMATOLOGY

Research grants in this area support studies on plant stress arising from interactions with insects, nematodes, or mites. The goal of the program is to support research which will lead to ways of reducing losses in plant productivity from damage caused by these organisms, and to do so in such a way as to sustain agricultural systems.

Research on plant/insect or plant/nematode interactions is encouraged as is research into the basic biology of these particular invertebrates. Specific emphasis is placed on but not limited to the following areas: (1) mechanisms of plant defense and resistance against insect attack (biochemical or genetic), (2) insect or nematode growth, development and reproduction (physiological, biochemical or molecular studies), (3) physiological and ecological interactions of biological control agents with their hosts (includes beneficial insects, viruses, bacteria, fungi and other organisms), (4) chemical ecology and behavior, (5) population dynamics (includes evolutionary studies), and (6) fundamental basis of pesticide toxicity and resistance.

National Research Initiative Competitive Grants Program
Entomology/Nematology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Arkansas Little Rock, AR 72205 Title: Studies of Serum Protein Expression and Function for Control of the Medfly	H. Benes	92-37302-7633	\$ 120,000	09/15/92-09/30/94
Northern Arizona University Flagstaff, AZ 86011 Title: Mycorrhizae and Herbivory: Interactions in Resistant, Susceptible & Hybrid Pines	T. Whitham C. Gehring	92-37302-7854	\$ 159,160	09/15/92-09/30/95
University of Arizona Tucson, AZ 85721 Title: Neuroethology of Pheromone-Mediated Flight in Heliothine Moths	T. Christensen	92-37302-7634	\$ 165,000	09/01/92-08/31/95
University of Arizona Tucson, AZ 85721 Title: Induction of P450 Genes by Plant Chemicals in <i>Manduca sexta</i>	R. Feyereisen	92-37302-7789	\$ 140,001	09/15/92-09/30/95
University of California, Berkeley Berkeley, CA 94720 Title: AcMNPV - <i>T.ni</i> Midgut Interaction	L. Volkman	91-37302-5874++	\$ 60,000	09/01/91-08/31/93
University of California, Berkeley Berkeley, CA 94720 Title: Plant Architecture and Tolerance to Herbivory	S. Welter	92-37302-7729	\$ 120,000	09/01/92-08/31/94
University of California Davis, CA 95616-8671 Title: Negative Interactions between Mites on Grapes	R. Karban D. Hougen-Eitzman	92-37302-7637	\$ 122,642	09/15/92-09/30/94

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National Research Initiative Competitive Grants Program
Entomology/Nematology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671 Title: Early Events in the Response of Resistant Tomato to Root-Knot Nematodes	V. Williamson	92-37302-7635	\$ 100,000	08/01/92- 07/31/94
University of California Davis, CA 95616-8671 Title: Induction, Interaction, and Impact of Tomato Chemical Defenses	S. Duffey	92-37302-7601	\$ 141,481	08/01/92- 07/31/95
University of California Davis, CA 95616-8671 Title: Quantifying and Modeling Dispersal of a Parasitoid from an Overwintering Refuge	A. Corbett	92-37302-7602	\$ 125,000	08/01/92- 07/31/94
University of California Davis, CA 95616-8671 Title: Nutritional Ecology of Aphytis Parasitoids: Non-Host Foods and Host Feeding	J. Rosenheim	92-37302-7855	\$ 93,953	09/01/92- 08/31/94
University of California Riverside, CA 92521 Title: Neuroendocrine Mechanisms of Arrested Host Development During Parasitism	N. Beckage	92-37302-7470	\$ 190,000	08/01/92- 07/31/95
University of California Riverside, CA 92521 Title: Chimeric Insecticidal Proteins and Selective Recombinant Viruses as Insecticides	B. Federici	92-37302-7603	\$ 120,000	09/01/92- 08/31/95
University of California Riverside, CA 92521 Title: Neuroethology of Pheromone-Mediated Flight in Heliothine Moths	T. Baker	92-37302-7636	\$ 135,000	08/01/92- 07/31/95

National Research Initiative Competitive Grants Program
Entomology/Nematology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Santa Barbara, CA 93106 Title: Size-Selective Parasitism and Host-Feeding in Aphytis	W. Murdoch R. Nisbet	90-37153-5237	\$ 180,000	07/01/90- 06/30/94
USDA/ARS Northern Plains Area Fort Collins, CO 80526 Title: Non-Apis Bees and Their Role as Crop Pollinators (Research Conference Support)	J. Vandenberg P. Torchio V. Tepedino	92-37302-7608	\$ 9,000	07/15/92- 07/31/93
Colorado State University Ft. Collins, CO 80523 Title: Structure of Grasshopper Communities Within Great Plains Landscape	T. Holtzer M. Carter	91-37302-6227++	\$ 75,000	09/01/91- 08/31/93
Colorado State University Ft. Collins, CO 80523 Title: Chemical Ecology of Host Location by Western Corn Rootworm Larvae	L. Bjostad B. Hibbard	90-37250-5371	\$ 100,000	07/01/90- 09/30/94
Colorado State University Ft. Collins, CO 80523 Title: Sex Allocation in the Outbreeding Wasp, Bracon hebetor	M. Antolin M. Strand	92-37302-8196	\$ 100,000	09/15/92- 09/30/94
University of Florida Gainesville, FL 32611 Title: IX International Entomophagous Insect Workshop	H. McAuslane	92-37302-7117	\$ 5,000	03/15/92- 09/30/92
University of Florida Gainesville, FL 32611 Title: Performance and Host Utilization of Leafhoppers Feeding on Xylem Fluid	P. Andersen R. Mizell	92-37302-7638	\$ 105,571	09/01/92- 08/31/94

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National Research Initiative Competitive Grants Program
Entomology/Nematology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
USDA/ARS South Atlantic Area Athens, GA 30613 Title: Gene-transfer Vector Analysis in Insects of Economic Importance	A. Handler	91-37302-5879++	\$ 60,000	09/01/91-08/31/93
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Characterization of Disease-inducing Secretions Produced by Root-knot Nematodes	R. Hussey	91-37302-5876++	\$ 60,000	09/15/91-08/31/93
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Interactions of Insect Resistance Genes in Soybean	W. Parrott M. Adang H. Boerma J. All	92-37302-8127	\$ 100,000	09/15/92-09/30/94
University of Illinois Urbana, IL 61801 Title: Cytoplasmic Incompatibility in Insects	H. Robertson	91-37302-6766	\$ 70,000	09/15/91-09/30/93
USDA/ARS Mid-West Area Peoria, IL 61604 Title: Semiochemicals Across Trophic Levels: Moths and Parasitoids in Stored-Products	T. Phillips M. Strand F. Webster	92-37302-7750	\$ 180,000	08/15/92-08/31/95
USDA/ARS Mid-West Area Peoria, IL 61604 Title: Barley Yellow Dwarf Epidemics: Impact of Local Hosts in Bridging Temporal Gaps	A. Hewings M. Irwin C. Eastman L. Domier	90-37153-5468	\$ 120,000	09/01/90-08/31/94
University of Illinois Urbana, IL 61801 Title: Regulation of Xanthotoxin-Inducible Cytochrome P450 Loci in Papillio Species	M. Berenbaum M. Schuler	92-37302-7639	\$ 200,000	09/01/92-08/31/95

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National Research Initiative Competitive Grants Program
Entomology/Nematology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Illinois Urbana, IL 61801 Title: The Ascent Phase of Aphid Migration and Dispersal	S. Isard M. Irwin	92-37302-7806	\$ 100,000	09/01/92- 08/31/94
University of Illinois Urbana, IL 61801 Title: Genetic and Physiological Determinants of Honey Bee Division of Labor	G. Robinson	92-37302-7856	\$ 100,000	09/01/92- 08/31/94
Indiana University Indianapolis, IN 46202-5167 Title: Juvenile Hormone Titer Disrupters	S. Sen	92-37302-8128	\$ 45,979	09/15/92- 09/30/94
Purdue Research Fdn. West Lafayette, IN 47907 Title: Amino Acid Transport in Colorado Potato Beetle Midgut	J. Neal M. Reuveni	92-37302-7604	\$ 120,000	08/01/92- 07/31/94
Purdue Research Fdn. West Lafayette, IN 47907 Title: Molecular Mechanisms Underlying the Wheat/Hessian Fly Genetic Interaction	J. Stuart R. Shukle	92-37302-8129	\$ 100,000	09/15/92- 09/30/94
Kansas State University Manhattan, KS 66506 Title: Transposon - Mediated Molecular Cloning and Germline Transformation in Beetles	R. Denell R. Beeman	92-37302-7605	\$ 70,000	08/01/92- 07/31/93
University of Kentucky Research Foundation Lexington, KY 40506-0057 Title: Redundancy in Chemical Communication	K. Haynes	91-37302-5875	\$ 8,003	07/01/91- 06/30/93

National Research Initiative Competitive Grants Program
Entomology/Nematology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Southern Forest Expt. Station USDA Forest Service New Orleans, LA 70113	P. Turchin J. Hayes	92-37302-7606	\$ 150,000	08/01/92- 07/31/95
Title: Evaluation of the Area-Wide Efficacy of Direct Control Tactics for Southern Pine Beetles				
University of Massachusetts Amherst, MA 01003	R. Prokopy	92-37302-7683	\$ 70,000	09/01/92- 08/31/93
Title: Bacterial Associations of Apple Maggot and Mediterranean Fruit Flies: Dynamics and Applied Value				
An Individual Awardee Brighton, MA 02135	L. Zwiebel	92-37302-8197	\$ 86,400	09/15/92- 09/30/94
Title: Germline Transformation and Biological Control of Medfly				
University of Montana Missoula, MT 59812	D. Pilson	92-37302-8130	\$ 100,000	09/15/92- 09/30/94
Title: The Effect of Multiple Herbivores on Selection for Plant Resistance				
North Carolina State University Raleigh, NC 27695-7003	G. Kennedy F. Gould	91-37302-6291++	\$ 70,000	09/01/91- 08/31/93
Title: Effects of Natural Enemies on Pest Adaptation to Resistant Crops				
North Carolina State University Raleigh, NC 27695-7003	C. Opperman M. Conkling	92-37302-7640	\$ 75,000	08/15/92- 08/31/93
Title: Characterization of a Nematode-Responsive Plant Gene Promotor				
North Carolina State University Raleigh, NC 27695-7003	M. Barbercheck	92-37302-7857	\$ 102,353	09/15/92- 09/30/94
Title: Tritrophic Level Effects on Entomopathogenic Nematodes				

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National Research Initiative Competitive Grants Program
Entomology/Nematology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704 Title: Enhanced Nematode Diagnostics by Polymerase Chain Reaction	T. Powers J. Noe	92-37302-7731	\$ 166,625	09/01/92- 08/31/95
University of Nebraska Lincoln, NE 68588-0430 Title: Grasshopper Phenology & Demography in Response to Variable Host Plant Quality	A. Joern S. Mole	92-37302-7730	\$ 120,000	09/01/92- 08/31/94
Rutgers, The State University Piscataway, NJ 08855-1089 Title: Regulation and Mechanism of Polydnavirus Replication	B. Webb	92-37302-7790	\$ 120,000	09/01/92- 08/31/94
Boyce Thompson Institute for Plant Research, Inc. Ithaca, NY 14853 Title: Fungal Reservoirs for Gypsy Moth Biological Control	A. Hajek D. Roberts A. Leopold	92-37302-7658	\$ 180,000	09/01/92- 08/31/95
Cornell University Ithaca, NY 14853 Title: Biosynthesis of Acyl Sugars and Insects Resistance in Lycopersicon	M. Mutschler	91-37302-5854++	\$ 70,000	09/01/91- 08/31/93
Cornell University Ithaca, NY 14853 Title: Behavioral and Chemical Ecology of the Oriental Beetle	W. Roelofs C. Linn M. Villani	92-37302-7657	\$ 93,722	08/01/92- 07/31/94
Boyce Thompson Institute for Plant Research, Inc. Ithaca, NY 14853 Title: Genes Related to Pathogenesis in a Fungal Entomopathogen, Metarrhizium anisopliae	D. Roberts R. Staples R. Leger	92-37302-7791	\$ 180,000	08/15/92- 08/31/94

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National Research Initiative Competitive Grants Program
Entomology/Nematology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station Cornell University Ithaca, NY 14853 Title: Molecular Genetics of the kdr Resistance Mechanism	D. Knipple D. Soderlund	92-37302-7792	\$ 116,294	08/15/92- 08/31/94
Vassar College Poughkeepsie, NY 12601 Title: Genetic and Environmental Effects on Willow Resistance to Herbivores in Relation to Foliar Chemistry	R. Fritz C. Nichols-Orians	92-37302-8053	\$ 84,544	09/15/92- 09/30/94
Ohio State University Research Foundation Columbus, OH 43210 Title: Evolution of Tolerance and Mutualism Between Leafhopper Vectors and Corn Stunting Mollicutes	L. Nault M. Ebbert	92-37302-7607	\$ 200,000	09/01/92- 08/31/95
Oregon State University Corvallis, OR 97331 Title: Identification and Characterization of Baculovirus Structural Proteins	G. Rohrmann M. Pearson	90-37263-5622	\$ 120,000	09/01/90- 08/31/94
Pennsylvania State University University Park, PA 16802 Title: Pathogen Tolerance in Lymantria dispar: Genetic and Maternal Effects Components	M. Rossiter J. Frazier	91-37302-6292++	\$ 70,000	08/01/91- 07/31/93
Pennsylvania State University University Park, PA 16802 Title: GABA Mediation of Gustatory Response to Plant Neurotoxicants in Diabrotica	C. Mullin J. Frazier	91-37302-6746	\$ 120,000	09/01/91- 08/31/94
University of Tennessee Knoxville, TN 37996-0140 Title: Male Behavioral Influences on Female Ovarian Maturation in Drosophila silvestris	C. Boake	92-37302-7793	\$ 100,000	09/01/92- 08/31/94

++ Continuation Award

National Research Initiative Competitive Grants Program
Entomology/Nematology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Tennessee Knoxville, TN 37996-0140 Title: Molecular Biology of Cytochrome P450-Related Insecticide Resistance	L. Waters R. Ganguly	90-37263-5761	\$ 120,000	09/15/90- 09/30/94
Engineering Expt. Station Texas A&M University College Station, TX 77843 Title: Juvenile Hormone Regulated Gene Expression: Mechanisms and Significance	J. Bradfield	92-37302-7659	\$ 70,000	09/01/92- 08/31/93
Virginia Polytechnic Institute and State University Blacksburg, VA 24061 Title: Etiology of Procerum Root Disease and Evaluation of Antifeedants on its Vector the Pales Weevil	S. Salom J. Carlson	92-37302-7641	\$ 112,845	09/01/92- 08/31/95
Washington State University Pullman, WA 99164-5045 Title: Defense Reactions in Conifers: Oleoresinosis	R. Croteau	91-37302-6311++	\$ 70,000	08/01/91- 07/31/93
Board of Regents University of Wisconsin Madison, WI 53706 Title: Membrane Glycoproteins in Thrips Transmission of Tomato Spotted Wilt Virus	T. German	91-37302-6295++	\$ 70,000	07/01/91- 06/30/93
Board of Regents University of Wisconsin Madison, WI 53706 Title: Spatial Heterogeneity and Plant-Herbivore-Predator Interactions	A. Ives	92-37302-7643	\$ 159,790	09/15/92- 09/30/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: Biological Significance of Juvenile Hormone Transport in the Insect Hemolymph	W. Goodman	92-37302-7642	\$ 99,999	08/15/92- 08/31/94

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National Research Initiative Competitive Grants Program
Entomology/Nematology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Board of Regents University of Wisconsin Madison, WI 53706 Title: Interactive Effects of Two Pathogens on Potato Gas Exchange and Water Relations	A. MacGuidwin	92-37302-7609	\$ 169,967	09/01/92- 08/31/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: The Role of Host Endocrine Factors in Development of Polyembryonic Parasitoids	M. Strand J. Aiken	92-37302-7859	\$ 200,000	09/01/92- 08/31/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: Cloning Cyclodiene/GABA Receptions from Agricultural Pests and its Applications	R. Ffrench-Constant	92-37302-7858	\$ 120,000	09/15/92- 09/30/94

Total : \$ 7,288,329

PLANT SYSTEMS

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ALCOHOL FUELS

This program supports research activities related to the physiological, microbiological, biochemical, and genetic processes controlling the biological conversion of agriculturally important biomass material to alcohol fuels and industrial hydrocarbons. Studies on factors which limit efficiency of biological production of alcohol fuels and means of overcoming these limitations are also encouraged.

National Research Initiative Competitive Grants Program
Alcohol Fuels

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Florida Gainesville, FL 32611 Title: Genetic Engineering of Bacteria for Ethanol Production	L. Ingram	92-37308-7471	\$ 180,000	09/01/92- 08/31/95
Boston University School of Medicine Boston, MA 02118 Title: Regulation in Clostridium Acetobutylicum	E. Kashket	92-37308-7518	\$ 140,000	09/01/92- 08/31/94
Rice University Houston, TX 77252-2692 Title: Molecular Mechanism of Regulation of Solvent Production in Acetobutylicum	G. Bennett F. Rudolph	92-37308-7700	\$ 180,000	09/01/92- 08/31/95

Total : \$ 500,000

PLANT SYSTEMS

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PLANT GENOME

This competitive grant program is part of the USDA Plant Genome Research Program. The Plant Genome Research Program was established in order to facilitate development of new or improved crop plants and forest species and to maintain germplasm resources, thereby promoting sustainability and profitability of plant production and improvement of quality of food, fiber, and feed. To accomplish these goals, the program gives high priority to research for construction of genetic and/or physical maps, and for detailed studies of specific regions of genomes, genes and genetic processes. The program also supports research on development of new methods or innovative approaches which have potential for scientific, plant production, and commercial application.

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Auburn University Auburn University, AL 36849 Title: Cloning and Characterization of a Chitinase/lysozyme Constitutively Expressed in Black Rot Resistant Cabbage Variety	S. Tuzun J. Shaw	92-37303-7558	\$ 100,000	09/01/92- 08/31/94
Auburn University Auburn University, AL 36849 Title: Isolation & Characterization of Maize Mitochondrial DNA Replication Origin(s)	H. Daniell B. Nielsen	92-37301-7782	\$ 110,000	09/15/92- 09/30/94
Northern Arizona University Flagstaff, AZ 86011 Title: Identification, Mapping & Characterization of the Duplicated Soybean Genomes	P. Keim	92-37300-7523	\$ 240,000	07/15/92- 07/31/95
University of California Berkeley, CA 94720 Title: Molecular Marker and Quantitative Trait Mapping Loblolly Pine	D. Neale	92-37300-7589	\$ 210,000	09/15/92- 09/30/95
University of California, Berkeley Berkeley, CA 94720 Title: Regulation of Tomato Fruit Development and Differentiation by HMG CoA Reductase	W. Gruissem	91-37301-5882++	\$ 78,000	08/01/91- 07/31/93
University of California, Berkeley Berkeley, CA 94720 Title: Phytochrome-regulated phy Gene Expression	P. Quail	92-37301-7678	\$ 195,000	09/01/92- 08/31/95
Rancho Santa Ana Botanic Garden Claremont, CA 91711 Title: Introgression Between Chromosomally Divergent Sunflower Populations	L. Rieseberg	92-37300-7590	\$ 210,000	08/01/92- 07/31/95

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NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671 Title: Identification of Important Genes in <i>Prunus</i> Using a DNA Marker-Based Linkage Map	F. Bliss	92-37300-7514	\$ 160,000	07/01/92- 06/30/94
University of California Davis, CA 95616-8671 Title: Consolidation of <i>B. oleracea</i> and <i>rapa</i> Linkage Map and Application in Tagging Genes in <i>B. Napus</i>	J. Hu C. Quiros	92-37300-7552	\$ 210,000	08/01/92- 07/31/95
University of California Davis, CA 95616-8671 Title: Paramutation and Transgene-Elicited Pigmentation Patterns in Petunia	R. Jorgensen	92-37301-7597	\$ 195,000	08/01/92- 07/31/95
University of California Davis, CA 95616-8671 Title: Map Based Cloning of Disease Resistance Genes	R. Michelmore	92-37300-7547	\$ 280,000	08/01/92- 07/31/95
University of California Davis, CA 95616-8671 Title: Brassica Genome Evolution	C. Quiros	90-37140-5425	\$ 115,000	09/01/90- 08/31/94
University of California Davis, CA 95616-8671 Title: Targeted Transposon Mutagenesis in Tomato	J. Yoder	90-37262-5322	\$ 60,000	09/01/90- 08/31/93
University of California Davis, CA 95616-8671 Title: Development of an RFLP Linkage Map for Cultivated Wheat	C. Quailset	92-37300-7550	\$ 270,000	08/01/92- 07/31/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671 Title: Research Collaboration Group on Molecular Mapping in Wheat and its Relatives	C. Qualset	92-37310-7664	\$ 117,240	09/01/92- 08/31/93
University of California Los Angeles, CA 90024 Title: Function of the Early Nodulin ENOD2 in Alfalfa Nodule Morphogenesis	K. Wycoff A. Hirsch	92-37305-7717	\$ 60,000	09/01/92- 08/31/94
University of California Riverside, CA 92521 Title: Molecular and Cell Biology of Oil Bodies in Maize and Brassica	A. Huang	91-37301-6370++	\$ 64,000	08/01/91- 07/31/93
University of California Riverside, CA 92521 Title: Genome Mapping to Facilitate Pest-Tolerant Citrus Cultivar Development	M. Roose	92-37300-7515	\$ 110,000	09/01/92- 08/31/94
University of Colorado Colorado Springs, CO 80933 Title: Aminolevulinate Synthesis in Arabidopsis	S. Berry-Lowe	92-37301-7747	\$ 90,000	09/15/92- 09/30/94
Yale University New Haven, CT 06511 Title: Dissecting Light-Regulated Development in Arabidopsis	X. Deng	92-37301-7706	\$ 108,000	09/15/92- 09/30/94
University of Florida Gainesville, FL 32611 Title: Chromatin Structure and Gene Expression in Plants	R. Ferl	91-37301-6372++	\$ 70,000	09/01/91- 08/31/93

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NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Florida Gainesville, FL 32611	C. Vallejos E. Hiebert B. Scully	92-37300-7467	\$ 184,000	09/01/92- 08/31/94
Title: High Resolution Mapping of the I Gene of Common Beans				
University of Florida Gainesville, FL 32611	F. Gmitter G. Moore	92-37300-7591	\$ 110,000	09/15/92- 09/30/94
Title: Genome Mapping to Facilitate Pest-tolerant Citrus Cultivar Development				
University of Florida Gainesville, FL 32611	W. Dawson J. Culver	92-37303-7752	\$ 165,000	09/01/92- 08/31/94
Title: Structure-Function Relationships of Tobamovirus-Plant Interactions				
USDA/ARS South Atlantic Area Athens, GA 30613	D. Pring	92-37301-7444	\$ 90,000	09/01/92- 08/31/94
Title: A Unique Mitochondrial DNA Configuration of a Male-Sterile Sorghum Cytoplasm				
University of Georgia Research Foundation, Inc. Athens, GA 30602	J. Bouton G. Kochert W. Parrott	92-37300-7468	\$ 200,000	07/15/92- 07/30/95
Title: RFLP Mapping of Aluminum Tolerance Genes in Alfalfa				
University of Georgia Research Foundation, Inc. Athens, GA 30602	G. Kochert H. Stalker	92-37300-7516	\$ 240,000	08/01/92- 07/31/95
Title: Enhancement of Peanut Breeding with Molecular Markers				
University of Georgia Research Foundation, Inc. Athens, GA 30602	R. Meagher	92-37301-7707	\$ 130,000	09/01/92- 08/31/94
Title: Molecular Genetics of De Novo Purine Biosynthesis in Higher Plants				

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Botanical Society of America Ames, IA 50011 Title: Symposium: Genetics of Economically Important Tropical Plant Species	D. Hauber	92-37301-7632	\$ 2,000	08/01/92-07/31/93
Iowa State University of Science and Technology Ames, IA 50011 Title: Molecular Isolation of a Nuclear Restorer Factor for cms-T Maize	P. Schnable R. Wise	92-37301-7702	\$ 120,000	09/01/92-08/31/94
University of Iowa Iowa City, IA 52242 Title: Assigning Genetic Functions to the B Chromosome of Maize	W. Carlson	92-37301-7679	\$ 92,000	09/15/92-09/30/94
Illinois State University Normal, IL 61761 Title: RFLP Mapping and Cloning Maize Centromeres with III Monosomics and Telocentrics	D. Weber	92-37300-7592	\$ 200,000	09/01/92-08/31/95
USDA/ARS Mid-West Area Peoria, IL 61604 Title: Molecular Linkage Analysis in Cucumber	J. Staub K. Poetter	92-37300-7551	\$ 140,000	07/01/92-06/30/94
University of Illinois Urbana, IL 61801 Title: Genomic Affinities in the Genus Glycine Willd.	T. Hymowitz R. Singh	92-37301-7749	\$ 116,000	08/15/92-08/31/94
University of Illinois Urbana, IL 61801 Title: Intron Recognition in Plants	A. McCullough	92-37301-7964	\$ 70,000	09/15/92-09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Illinois Urbana, IL 61801 Title: Plant Cytochrome P-450s	M. Schuler	92-37301-7748	\$ 120,000	09/15/92- 09/30/94
Kansas State University Manhattan, KS 66506 Title: Analysis of the Rpl Locus of Maize	S. Hulbert	91-37303-5883++	\$ 34,000	08/01/91- 07/31/93
Kansas State University Manhattan, KS 66506 Title: Cytogenetically Based Physical Map of Wheat Genome	B. Gill	92-37300-7593	\$ 300,000	08/01/92- 07/31/95
Kansas State University Manhattan, KS 66506 Title: Development of a High Density Chromosome Map Using Region-Specific Libraries	S. Hulbert D. Delaney B. Gill	92-37300-7746	\$ 127,500	09/01/92- 08/31/95
University of Kentucky Research Foundation Lexington, KY 40506-0057 Title: In Vitro and in Vivo Studies of mRNA 3' End Formation in Plants	A. Hunt	92-37301-7708	\$ 120,000	09/01/92- 08/31/94
Massachusetts General Hospital Boston, MA 02114 Title: Cloning of GA Biosynthetic and Response Genes from Arabidopsis	H. Goodman	92-37300-7469	\$ 270,000	08/01/92- 07/31/95
Massachusetts General Hospital Boston, MA 02114 Title: Molecular Mechanisms of Maize C4PPDK Gene Regulation	J. Sheen	91-37306-6352++	\$ 55,000	09/01/91- 08/31/93

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NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Harvard University Cambridge, MA 02138 Title: Isolation & Analysis of Cell-to-cell Communication Mutations in Pollination	S. Kopczak	92-37301-7851	\$ 58,000	09/01/92- 08/31/94
USDA/ARS Beltsville Area Beltsville, MD 20705 Title: Molecular & Functional Analysis of Cellulase & Polygalacturonase Gene Expression	M. Tucker	92-37301-7680	\$ 108,000	09/01/92- 08/31/94
Federation of American Societies of Experimental Biology Bethesda, MD 20814 Title: FASEB Summer Research Conference: Plant Molecular Genetics	R. Horsch	92-37301-7553	\$ 8,000	08/01/92- 07/31/93
Michigan State University East Lansing, MI 48824 Title: Developing Genetic Markers for Breeding and Biotechnology of Asparagus	K. Sink K. Yao	92-37300-7517	\$ 180,000	09/01/92- 08/31/95
Michigan State University East Lansing, MI 48824 Title: Targeting to the Nucleus in Plant Cell	N. Raikhel	92-37301-7709	\$ 80,000	09/15/92- 09/30/94
Michigan State University East Lansing, MI 48824 Title: Cis-Acting Elements and Trans-Acting Factors Involved in Nodulin Gene Regulation	F. de Bruijn	92-37305-7735	\$ 140,000	09/01/92- 08/31/94
Michigan Technological University Houghton, MI 49931 Title: Expression of Lignin - Specific Antisense Gene to Regulate Lignin Biosynthesis	V. Chiang G. Podila	92-37301-7598	\$ 105,000	09/01/92- 08/31/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Minnesota Minneapolis, MN 55415 Title: Mapping and Isolation of Genomic Regions Controlling Maturity in Maize	R. Phillips	92-37300-7524	\$ 180,000	09/01/92-08/31/94
University of Minnesota Minneapolis, MN 55415 Title: Molecular Genetic Characterization of Maize Acetyl-CoA Carboxylase	B. Gengenbach M. Egli	92-37301-7852	\$ 114,000	09/15/92-09/30/94
University of Missouri Columbia, MO 65211 Title: Expression of Plant tRNA Genes	W. Folk	92-37301-7783	\$ 125,000	09/01/92-08/31/94
Washington University St. Louis, MO 63130 Title: Hormonal and Endosperm-Specific Regulation of Genes in Barley	J. Rogers	92-37301-7681	\$ 115,000	08/15/92-08/31/94
Agri. & Forestry Expt. Station Mississippi State University Mississippi State, MS 39762 Title: Genetic Linkage of Molecular Markers in Sweetpotato	P. Thompson	92-37311-8135	\$ 49,992	09/15/92-09/30/94
Montana State University Bozeman, MT 59717 Title: Repetitive DNA Variation and Pivotal-Differential Evolution of Wild Wheats	L. Talbert	92-37311-8137	\$ 44,688	09/15/92-09/30/94
Montana State University Bozeman, MT 59717 Title: Improving Genome Analysis Capabilities at Montana State University	T. Blake T. McCoy L. Talbert	92-37311-8136	\$ 43,160	09/15/92-09/30/93

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
North Carolina State University Raleigh, NC 27695-7003	R. Sederoff H. Amerson D. O'Malley	92-37300-7548	\$ 210,000	09/01/92- 08/31/95
Title: Genomic Mapping of Host Factors for Fusiform Rust Resistance				
North Carolina State University Raleigh, NC 27695-7003	D. O'Malley S. McKeand R. Sederoff	92-37300-7549	\$ 220,000	09/01/92- 08/31/95
Title: Half-sib RAPD Analysis of QTLs Underlying Early Shoot Growth in Loblolly Pine				
North Carolina State University Raleigh, NC 27695-7003	C. Opperman M. Conkling	92-37302-7640	\$ 75,000	08/15/92- 08/31/93
Title: Characterization of a Nematode-Responsive Plant Gene Promotor				
North Carolina State University Raleigh, NC 27695	W. Thompson	92-37301-7710	\$ 138,000	09/15/92- 09/30/94
Title: Functional Analysis of Chromosomal Domains in Transgenic Plant Cells				
North Carolina State University Raleigh, NC 27695-7003	A. Stomp B. Bergmann	92-37300-7850	\$ 180,000	09/01/92- 08/31/95
Title: Genetic Transformation of <i>Pinus radiata</i>				
Agricultural Expt. Station North Dakota State University Fargo, ND 58105	P. McClean	92-37311-8064	\$ 50,000	09/15/92- 09/30/94
Title: Molecular Mapping Complex Disease Resistance Loci in Bean				
Agricultural Expt. Station North Dakota State University Fargo, ND 58105	J. Rasmussen B. Steffenson	92-37311-7943	\$ 49,982	09/15/92- 09/30/94
Title: Molecular Marking of a Stem Rust Resistance Gene in Barley				

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704 Title: Fungal Zoospore Mediated Transfer of Foreign DNA into Plants	A. Mitra W. Langenberg	92-37301-7784	\$ 55,000	09/01/92- 08/31/93
University of New Hampshire Durham, NH 03824 Title: Mapping the Strawberry Genome	T. Davis J. Pollard G. Galletta	92-37300-7442	\$ 180,000	07/01/92- 06/30/95
Rutgers, The State University Piscataway, NJ 08855-1089 Title: Molecular Analysis of a Light-Responsive Element	E. Lam	92-37301-7786	\$ 160,000	09/01/92- 08/31/94
Wells College Aurora, NY 13026 Title: The I Gene of Bean and Broad Spectrum Potyvirus Resistance	C. Collmer	92-37311-8062	\$ 50,000	09/15/92- 09/30/94
Cold Spring Harbor Laboratory Cold Spring Harbor, NY 11724 Title: Functional Analysis of AGL1 and AGL2 in a Floral Regulatory Hierarchy	H. Ma	92-37301-7445	\$ 138,000	09/15/92- 09/30/94
Cornell University Ithaca, NY 14853 Title: Development of PCR-based Hypervariable Microsatellite Markers for Wheat	M. Sorrells M. Roder	92-37300-7594	\$ 140,000	07/15/92- 07/31/94
Cornell University Ithaca, NY 14853 Title: Isolation of Megabase-sized DNA and Construction of a Physical Map in Rice	R. Wu	91-37300-6567	\$ 270,000	08/01/91- 07/31/95

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station Cornell University Ithaca, NY 14853 Title: A Structural and Transcriptional Analysis of the S-Locus Region of Brassica	J. Nasrallah M. Nasrallah	92-37301-7828	\$ 71,000	09/01/92- 08/31/93
Cornell University Ithaca, NY 14853 Title: Experimental Manipulation of Chloroplast Gene Copy Number in Chlamydomonas	K. Kindle D. Stern	92-37301-7787	\$ 120,000	09/15/92- 09/30/94
Cornell University Ithaca, NY 14853 Title: Efficient Transformation of Plant Cells with Yeast Artificial Chromosomes	E. Earle	92-37300-7781	\$ 180,000	09/15/92- 09/30/95
Agricultural Expt. Station Cornell University Ithaca, NY 14853 Title: Genetic and Physical Mapping of a Fertility Restorer Locus	M. Hanson	92-37300-7595	\$ 90,500	09/01/92- 08/31/94
Ohio State University Research Foundation Columbus, OH 43210 Title: Control of Nitrogen Assimilation Genes in Root Nodules	D. Verma	92-37305-7813	\$ 100,000	09/15/92- 09/30/94
Oregon State University Corvallis, OR 97331 Title: Software for Mapping Genetic Markers and Quantitative Trait Loci	S. Knapp	92-37300-7652	\$ 210,000	08/01/92- 07/31/95
Oregon State University Corvallis, OR 97331 Title: A Plus Sense RNA-based Virus Resistance Strategy	W. Dougherty	92-37303-7893	\$ 70,000	09/01/92- 08/31/93

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Gordon Res. Conference Kingston, RI 02881 Title: Gordon Conference on Quantitative Genetics & Biotechnology	F. Enfield	92-37300-7596	\$ 5,000	09/15/92- 09/30/93
Gordon Res. Conference Kingston, RI 02881 Title: 1992 Gordon Research Conference on Plant Molecular Biology	S. Howell	92-37301-7727	\$ 7,000	08/01/92- 07/31/93
University of Tennessee Knoxville, TN 37996-0140 Title: Structure, Function and Regulation of Soybean Nodulin 26	D. Roberts	91-37305-6752++	\$ 50,000	09/01/91- 08/31/93
University of Tennessee Knoxville, TN 37996-0140 Title: Genetic Regulation of the Nodulation Genes of <i>Bradyrhizobium japonicum</i>	G. Stacey	92-37305-7814	\$ 140,000	09/01/92- 08/31/94
University of Texas Austin, TX 78713-7726 Title: Nature and Function of Meiotic Genetic Elements Concerned with Fertility	M. Maguire	92-37301-7600	\$ 73,000	09/01/92- 08/31/94
University of Texas Austin, TX 78712-1111 Title: Splicing and Mobility of Chloroplast Group I Introns	D. Herrin	92-37301-7682	\$ 100,000	09/15/92- 09/30/94
Texas A&M Research Foundation College Station, TX 77843 Title: High Density Mapping and Isolation of Genes Regulating Tomato Fruit Ripening	J. Giovannoni	92-37300-7653	\$ 220,000	09/15/92- 09/30/95

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NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Texas A&M Research Foundation College Station, TX 77843 Title: Development of Cytogenetic Stocks for Genetic, Cytogenetic and Physical Mapping	D. Stelly	92-37300-7655	\$ 210,000	09/01/92- 08/31/95
Texas A&M Research Foundation College Station, TX 77843 Title: Regulation of Patatin Gene Expression in Potato	W. Park	92-37301-7788	\$ 133,000	09/01/92- 08/31/94
Agricultural Expt. Station Texas A&M University System College Station, TX 77843 Title: DNA Markers for Genes Affecting Height and Photoperiod in Sorghum	A. Paterson K. Schertz R. Wing	92-37300-7654	\$ 99,500	09/01/92- 08/31/94
University of Utah Salt Lake City, UT 84112 Title: Sequencing of the Maize Mitochondrial Genome	C. Fauron	92-37300-7631	\$ 270,000	08/01/92- 07/31/95
Washington State University Pullman, WA 99164-5045 Title: Genetic and Molecular Approaches to Modifying the Composition of Seed Oils	J. Browse	92-37301-7728	\$ 195,000	09/01/92- 08/31/95
University of Washington Seattle, WA 98195 Title: Video Mapping of Large DNA Elements	A. Bendich L. Comai	92-37300-7677	\$ 190,000	09/01/92- 08/31/94
University of Washington Seattle, WA 98195 Title: Mapping Quantitative Trait Loci in Populus	H. Bradshaw R. Stettler G. Chastagner G. Newcombe	92-37300-7656	\$ 280,000	08/01/92- 07/31/95

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Plant Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Board of Regents University of Wisconsin Madison, WI 53706 Title: Molecular and Biochemical Analysis of Ubiquitin Enzymes in Plants	R. Vierstra	91-37301-6290++	\$ 75,000	07/01/91- 06/30/93
USDA/ARS Mid-West Area Peoria, IL 61604 Title: Construction of a Low-Density Genetic Map of Onion (Allium cepa L.)	M. Havey	92-37300-7546	\$ 103,500	09/01/92- 08/31/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: Meiotic Mutants for Exploitation of Solanum Germplasm	S. Peloquin	92-37301-7711	\$ 57,000	08/15/92- 08/30/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: Interactions Between Nuclear and Cytoplasmic Genomes in Maize	J. Coors	92-37301-7853	\$ 55,000	09/15/92- 09/30/94

Total : \$ 12,309,062

++ Continuation Award

MARKETS, TRADE AND POLICY

The purpose of this Division is two-fold. One is to support research to enhance the marketability and competitiveness of U.S. agricultural, forest, and fish products in global marketing. Research includes development and/or application of methodologies to assess product preference, demand, and utilization by consumers and factors affecting competitiveness including resource availability, costs, new technologies, and market structure. Public policy research is supported that evaluates the market development and competitiveness impacts and alternatives of fiscal, monetary, trade promotion, sustainable, human resource, research, and other programs and regulations.

The second purpose of the Division is to develop and/or apply research methodologies to problems affecting economic welfare and quality of living of rural communities and people by examining the effects of international, national, and local policies. Research involves comparative analysis of the impacts of policy options and alternatives on natural resource use, population distribution, and the structure of rural society. The goal is to develop new economic development opportunities to sustain rural communities and people in the United States.

MARKETS ASSESSMENTS, COMPETITIVENESS, AND TECHNOLOGY ASSESSMENT

The goal of this program is to support research aimed at assessing market preferences, demand, and utilization for various agricultural and forest products and commodities; determining the ability of the U.S. to compete for these markets; and assessing the impacts of new products and production technologies on U.S. competitiveness, the environment, and rural economies. Research was specifically encouraged to: (1) identify, describe and quantify the size of potential international markets; (2) ascertain the ability of the U.S. to compete in particular agricultural global markets; and (3) determine the benefits and costs of adopting new products and/or sustainable production methods.

National Research Initiative Competitive Grants Program
 Markets, Competitiveness & Technology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
The Board of Trustees University of Arkansas Fayetteville, AR 72701 Title: Mexican Consumer Attitudes Toward U.S. Value-Added Poultry	W. Bailey	92-37400-8140	\$ 65,951	09/15/92- 09/30/93
University of California Davis, CA 95616-8671 Title: The Impact of Marketing Order Prorates on Export Competitiveness of U.S. Citrus	J. Alston H. Carman J. Chalfant	92-37400-8271	\$ 70,000	09/15/92- 03/31/95
University of California Davis, CA 95616-8671 Title: Foreign Genetic Resources for U.S. Agricultural Research	J. Taylor D. Larson	92-37400-8272	\$ 110,000	09/15/92- 03/31/95
Colorado State University Ft. Collins, CO 80523 Title: Canadian Furniture Consumers: A Study of Decision Making for Purchase	B. Oliver M. Eckman	92-37400-8273	\$ 110,000	09/15/92- 09/30/94
Iowa State University of Science and Technology Ames, IA 50011 Title: Competitiveness of U.S. Beef, Pork, and Poultry Industries with Those of Eastern Europe and the EC	D. Hayes D. Olson T. Wahl	92-37400-8297	\$ 90,009	09/15/92- 09/30/94
Purdue Research Foundation West Lafayette, IN 47907 Title: Alternative Modes of Selling Processed Foods Abroad: Direct Investment, Exports, Licensing, and Joint Ventures	J. Connor	92-37400-8141	\$ 99,301	09/15/92- 09/30/94
Purdue Research Foundation West Lafayette, IN 47907 Title: Firm and Market Structure Impacts on Food Processing Industry Export Performance	C. Durham	92-37400-8274	\$ 89,967	09/15/92- 09/30/95

National Research Initiative Competitive Grants Program
 Markets, Competitiveness & Technology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Kentucky Research Foundation Lexington, KY 40506-0057 Title: Assessing Meat Market Potentials in South Korea and Taiwan	M. Reed	92-37400-8275	\$ 93,371	09/15/92- 09/30/94
University of Maryland College Park, MD 20742 Title: Effects of Proposed Free Trade Areas on Competitiveness of U.S. Agriculture	E. Brown R. Chambers	92-37400-8298	\$ 158,437	09/15/92- 09/30/93
University of Missouri Columbia, MO 65211 Title: Value Added Food Firms: Competitiveness and Market Valuation	B. Bjornson	92-37400-8276	\$ 24,214	09/15/92- 09/30/94
University of Missouri, Columbia, MO 65211 Title: Food Safety Technical Requirements and Quality Standards on International Food Trade	M. Bredahl	92-37400-8299	\$ 79,312	09/15/92- 09/30/94
North Carolina State University Raleigh, NC 27695-7003 Title: Development and Application of Specific Technology Assessment Techniques	R. Perrin	92-37400-8200	\$ 74,887	09/15/92- 09/30/94
Agricultural Expt. Station North Dakota State University Fargo, ND 58105 Title: Economics and Strategy for U.S. Value-Added Wheat Exports	F. Dooley W. Wilson	92-37400-8300	\$ 120,000	09/15/92- 09/30/95
Agricultural Expt. Station Oklahoma State University Stillwater, OK 74078 Title: U.S. High-Value Food Export Potential in Indonesia	D. Tilley	92-37400-8277	\$ 135,000	09/15/92- 09/30/95

National Research Initiative Competitive Grants Program
 Markets, Competitiveness & Technology

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station University of Tennessee Knoxville, TN 37901-1071 Title: U.S. Hardwood Lumber Exports to Japan: Assessment of Market Potential	K. Jensen	92-37400-8248	\$ 36,913	09/15/92- 09/30/93
Texas A&M Research Foundation College Station, TX 77843 Title: Impact of NAFTA on the Competitiveness of Beef Fabrication, Packaging, and Trade	D. Farris R. Dietrich	92-37400-8302	\$ 155,560	09/15/92- 09/30/94
Texas A&M Research Foundation College Station, TX 77843 Title: Nutrient Content Ratings for Packaged or Combined Foods or Restaurant Meals	D. Padberg K. Kubena	92-37400-8301	\$ 77,008	09/15/92- 09/30/94
Virginia Polytechnic Institute & State University Blacksburg, VA 24061-0429 Title: The Role of Strategy in the Competitiveness of the U.S. Wood Furniture Industry	R. Bush	92-37400-8142	\$ 68,190	09/15/92- 09/30/95
University of Washington Seattle, WA 98195 Title: Global Competitive Trade in Forest Products and Environmental Impacts Assessment	J. Perez-Garcia	92-37400-8303	\$ 64,000	09/15/92- 09/30/93
Board of Regents University of Wisconsin Madison, WI 53706 Title: An Interregional Analysis of U.S.-Mexico Trade in Dairy Products	T. Cox J. Chavas	92-37400-8143	\$ 59,039	09/15/92- 09/30/93
University of Wyoming Laramie, WY 82071 Title: Assessment of the Export Market Opportunities for Buffalo Meat	E. Bradley S. Tork	92-37400-8304	\$ 116,000	09/15/92- 09/30/94

Total : \$ 1,897,159

RURAL DEVELOPMENT

Rural areas dependent on agriculture, forestry, and other natural resource based industries have been subjected to various forces that reduce their economic vitality. This program calls for theoretical and empirical research to help understand the ways these forces affect economic vitality and evaluate how well public policies might restore the vitality. Three general areas were selected for focus: (1) new theoretical, conceptual, and methodological research applying to rural revitalization issues; (2) empirical studies to determine the nature and magnitude of forces impacting rural areas; and (3) empirical evaluations of methods and policies for revitalizing rural areas.

National Research Initiative Competitive Grants Program
Rural Development

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Auburn University, Auburn University, AL 36849	C. Bailey J. Bliss G. Howze L. Teeter	92-37401-8278	\$ 251,233	09/15/92- 09/30/95
Title: Social and Economic Correlates of Timber Dependency in Alabama				
University of California Davis, CA 95616-8671	W. Johnston	92-37401-8279	\$ 104,158	09/15/92- 09/30/95
Title: Changes in Economic Activity, Land Markets and Employment with Decreased Water Availabilities				
USDA, ERS, ARED Washington, DC 20005-4788	J. Cromartie L. Swanson	92-37401-8280	\$ 26,982	09/15/92- 09/30/94
Title: Exploring Rural Settlement: New Statistical Areas Based on Sub-county Geography				
USDA, ERS, ARED Washington, DC 20005-4788	P. Swaim M. Podgursky	92-37401-8281	\$ 107,109	09/15/92- 09/30/94
Title: Worker Skill Upgrading and Rural Revitalization				
Iowa State University of Science and Technology Ames, IA 50011	P. Orazem J. Mattila	92-37401-8284	\$ 116,353	09/15/92- 09/30/94
Title: The Impact of Minimum Wages on Rural Retail and Service Sector Labor Markets				
University of Idaho Moscow, ID 83843	M. Robison M. Lahr	92-37401-8282	\$ 76,152	09/15/92- 09/30/95
Title: Improving Rural Economic Models: Trade Hierarchies and Selective Survey Work				
Loyola University of Chicago Chicago, IL 60611	J. Pelissero K. Johnson	92-37401-8283	\$ 107,925	09/15/92- 09/30/94
Title: Impact of Rural Demographic Change and Fiscal Stress on Community Development				

National Research Initiative Competitive Grants Program
Rural Development

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Missouri Columbia, MO 65211 Title: A New Concept of the State: A Theoretical Tool for Revitalizing Rural America	A. Bonanno W. Heffernan	92-37401-8305	\$ 13,852	09/15/92- 09/30/95
Cornell University Ithaca, NY 14853 Title: Small Manufacturing Firms in Rural and Regional Industrial Development	R. Young	92-37401-8249	\$ 111,964	09/15/92- 09/30/94
Ohio State University Research Foundation Columbus, OH 43210-1063 Title: Regional Policy Impact Models for Applied Welfare Analysis	L. Hushak D. Kraybill	92-37401-8250	\$ 141,832	09/15/92- 09/30/94
Pennsylvania State University University Park, PA 16802 Title: Economic Restructuring and Rural Community Transformation	A. Luloff K. Wilkinson S. Smith L. Singletary	92-37401-8285	\$ 236,970	09/15/92- 09/30/95
Clemson University Clemson, SC 29634-5326 Title: Rural Economic Development through Enhanced Linkages to Metropolitan Areas	D. Barkley M. Henry	92-37401-8251	\$ 122,032	09/15/92- 09/30/94
Texas A&M Research Foundation College Station, TX 77843 Title: Mexican American Entrepreneurship in Southwest Nonmetropolitan Communities	R. Saenz	92-37401-8252	\$ 161,896	09/15/92- 09/30/95
Virginia Polytechnic Institute & State University Blacksburg, VA 24061-0429 Title: Economic Development Strategies and Entrepreneurial Social Infrastructure	J. Flora C. Flora	92-37401-8286	\$ 186,383	09/15/92- 09/30/95

Total : \$ 1,764,841

PROCESSING ANTECEDENT TO ADDING VALUE

In response to a growing awareness of the need to enhance the competitive value and quality of U.S. agricultural products, the program area of Processing Antecedent to Adding Value or Developing New Products has been developed. Research in this program focuses on increasing the knowledge base to improve efficiency in the processing of raw products; to develop innovative processing/preservation methods for the conversion of agricultural materials into new value-added food and non-food products; and to enhance the quality of food and non-food products.

National Research Initiative Competitive Grants Program
Processing for Value Added

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671 Title: Structure/Function Relations & Engineering Properties of Foods During Frying	R. Singh	92-37500-7916	\$ 105,000	09/15/92- 09/30/94
Iowa State University of Science and Technology Ames, IA 50011 Title: Protein Engineering of Glucoamylase	P. Reilly C. Ford	92-37500-8204	\$ 160,000	09/15/92- 09/30/95
Iowa State University of Science and Technology Ames, IA 50011 Title: X-Ray Diffraction Studies of Glucoamylase	R. Honzatko J. Robyt L. Firsov	92-37500-8203	\$ 200,000	09/15/92- 09/30/95
University of Illinois Urbana, IL 61801 Title: Measurement of Physical Properties of Agricultural Materials by MRI	J. Litchfield S. Schmidt P. Lauterbur	92-37500-8012	\$ 164,000	09/15/92- 09/30/94
University of Illinois Urbana, IL 61801 Title: Bioprocess Strategy to Amplify Natural Plant Pigment Production in Vitro	M. Smith M. Berber-Jimenez L. Spomer J. Reid	92-37500-8145	\$ 195,000	09/15/92- 09/30/95
The Board of Trustees University of Illinois Champaign, IL 61820 Title: CMA From Corn: Scale-up of the Fermentation & Recovery Processes	M. Cheryan S. Parekh	92-37500-8014	\$ 101,935	09/15/92- 09/30/94
Purdue Research Foundation West Lafayette, IN 47907 Title: Value Added Products From Steep Water and Residual Fiber of Corn Wet Milling Process	G. Tsao	92-37500-8019	\$ 168,000	09/15/92- 09/30/94

National Research Initiative Competitive Grants Program
Processing for Value Added

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Purdue Research Foundation West Lafayette, IN 47907 Title: Corn-Based Sorbents for Drying of Industrial Gases by Pressure Swing Adsorption	M. Ladisch P. Westgate	92-37500-8013	\$ 116,000	09/15/92- 09/30/94
Purdue Research Foundation West Lafayette, IN 47907 Title: Investigation of Shelf-Life of Food Emulsions	D. Ramkrishna G. Narsimhan	92-37500-8020	\$ 175,000	09/15/92- 09/30/95
Purdue Research Foundation West Lafayette, IN 47907 Title: Improvements in Aseptic Processing of Low-Acid Foods with or without Particulates	R. Singh	92-37500-8016	\$ 177,000	09/15/92- 09/30/95
Kansas State University Manhattan, KS 66506 Title: Development of Interpenetrating Polymer Networks Based on Hide & Leather	J. Schlup L. Fan	92-37500-7911	\$ 174,000	09/15/92- 09/30/95
Board of Supervisors Louisiana State University and A&M College Baton Rouge, LA 70893-0905 Title: Separation of Biomass Extracts with Simulated Moving Bed Adsorption	M. Saska	92-37500-8205	\$ 162,000	09/15/92- 09/30/95
University of Massachusetts Amherst, MA 01003 Title: Fractal, Power Spectrum and SDP Analyses of Brittle Foods and Agricultural Commodities	M. Peleg	92-37500-8015	\$ 150,000	09/15/92- 09/30/95
Mississippi State University Mississippi State, MS 39762 Title: Development of New Wood Preservatives Based on Synergistic Combinations	T. Schultz D. Nicholas	92-37500-8146	\$ 80,000	09/15/92- 03/31/95

National Research Initiative Competitive Grants Program
 Processing for Value Added

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
North Carolina State University Raleigh, NC 27695-7003	T. Klaenhammer D. O'Sullivan M. Conkling	92-37500-8018	\$ 189,000	09/15/92- 09/30/95
Title: Bacteriophage-Specific Suicide & Expression Systems for Industrial Fermentations				
North Carolina State University Raleigh, NC 27695-7003	H. Swaisgood	92-37500-8017	\$ 167,000	09/15/92- 09/30/95
Title: Recombinant Enzymes for Preparation of Bioreactors by Selective Adsorption				
Agricultural Expt. Station North Dakota State University Fargo, ND 58105	K. Chang	92-37500-7970	\$ 100,000	09/15/92- 09/30/94
Title: Structure and Functional Properties of Pectin from Sunflower Heads				
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704	R. Chinnaswamy M. Hanna	92-37500-7969	\$ 152,000	09/15/92- 09/30/95
Title: Reactive Processing for Starch Grafts				
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704	R. Wehling M. Zeece D. Shelton	92-37500-7971	\$ 91,789	09/15/92- 09/30/94
Title: Characterization of Wheat Proteins & Their Relationship to Breadmaking Quality				
State University of New York, Albany Albany, NY 12201	E. Block	92-37500-8068	\$ 187,000	09/15/92- 09/30/96
Title: Analytical and Isolation Methods for Primary Flavorants of Genus Allium Plants				
Cornell University Ithaca, NY 14853	M. Rao	92-37500-8206	\$ 57,807	09/15/92- 09/30/94
Title: Effect of Composition on Viscous and Viscoelastic Properties of Tomato Products				

National Research Initiative Competitive Grants Program
Processing for Value Added

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Oregon State University Corvallis, OR 97331 Title: Elucidation and Optimization of Bioprotectant Mechanisms Against Wood Staining Fungi	J. Morrell	92-37500-8207	\$ 105,000	09/15/92- 09/30/94
Oregon State University Corvallis, OR 97331 Title: Enhancing Wood Treatment via Sonification	J. Simonsen J. Wilson	92-37103-7947**	\$ 20,000	09/15/92- 09/30/94
Clemson University Clemson, SC 29634-5326 Title: Modification and Utilization of Grain Protein Films	R. Testin P. Vergano H. Park	92-37500-8208	\$ 141,000	09/15/92- 09/30/95
Texas A&M Research Foundation College Station, TX 77843 Title: Advanced Stress Rating System Suitable for Small Lumber Mills	D. Bender	92-37500-8209	\$ 76,000	09/15/92- 09/30/94
University of Washington Seattle, WA 98195 Title: Improved Recycling of Waste Paper by the Use of Cell Wall Filler Technology	G. Allan	92-37500-7972	\$ 94,000	09/15/92- 09/30/94
USDA Forest Service Madison, WI 53705 Title: Modified Urea-Formaldehyde Adhesives for Bonding Wood Composites	A. Conner C. Hill T. Elder	92-37500-8069	\$ 125,000	09/15/92- 09/30/94

Total : \$ 3,633,531

** Split Funded Award

STRENGTHENING AWARDS

Strengthening Awards are intended to ensure that faculty of small and mid-sized institutions or at institutions in USDA-EPSCoR States who have not previously been successful in obtaining competitive grants from the NRICGP or CRGO receive support for strengthening their research programs. The research must be in an area supported by the NRICGP. The following types of Strengthening Awards are available: Research Career Enhancement Awards (to fund sabbatical leaves); Equipment Grants (to supply 50% of the funds necessary to purchase one major piece of equipment within the cost range of \$10,000-\$100,000); Seed Grants (to collect preliminary data); and Strengthening Standard Research Project Grants (to support standard-research projects). Applications for the Research Career Enhancement Awards, Equipment Grants and Seed Grants were reviewed together by multidisciplinary peer panels. Strengthening Standard Research Project applications were reviewed in the program area most appropriate for the type of research proposed. Therefore, these awards also appear under the program area in which they were reviewed.

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Alaska Fairbanks, AK 99775-1720 Title: Agronomic Value of Two Genes Conferring Limited Tillering in Barley	S. Dofing	92-37311-8270**	\$ 18,759	09/15/92- 09/30/93
The Board of Trustees University of Arkansas Fayetteville, AR 72701 Title: Mexican Consumer Attitudes Toward U.S. Value-Added Poultry	W. Bailey	92-37400-8140	\$ 65,951	09/15/92- 09/30/93
Agricultural Expt. Station University of Arkansas Fayetteville, AR 72701 Title: Dietary Forage Characteristics and Splanchnic Bed Nutrient Flux in Sheep	A. Goetsch	92-37208-8185	\$ 12,091	09/15/92- 09/30/93
The Board of Trustees University of Arkansas Fayetteville, AR 72701 Title: Virulence Assays in 8 H of Food & Clinical Listeria with Mouse Hybridoma Cells	A. Bhunia M. Johnson	92-37201-8175	\$ 130,000	09/15/92- 09/30/94
The Board of Trustees University of Arkansas Fayetteville, AR 72701 Title: Genetic and Molecular Population Diversity in Colletotrichum	J. Correll G. Weidemann T. Morelock D. Rhoads	92-37303-8006	\$ 43,200	09/15/92- 09/30/93
The Board of Trustees University of Arkansas Fayetteville, AR 72701 Title: Carbon Partitioning and Plastid Ontogeny in Germinating Pine Seedlings	J. Murphy	92-37106-8171	\$ 50,000	09/15/92- 09/30/94
The Board of Trustees University of Arkansas Fayetteville, AR 72701 Title: Hepatic Blood Flow Determination in Poultry Using Thermal Pulse Decay Methodology	W. Bottje	92-37208-8120	\$ 48,726	09/15/92- 09/30/94

** Split Funded Award

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station University of Arkansas Fayetteville, AR 72701 Title: Uterine Oxytocin Receptors During Porcine Gestation	S. Lundin-Schiller R. Rorie	92-37208-8184	\$ 46,284	09/15/92- 09/30/94
University of Arkansas for Sciences Little Rock, AR 72205 Title: Studies of Serum Protein Expression and Function for Control of the Medfly	H. Benes	92-37302-7633	\$ 120,000	09/15/92- 09/30/94
California State University Hayward, CA 94542 Title: Development of RAPD Markers to Study the Invasion Biology of Tephritid Flies	S. Opp	92-37311-8246	\$ 50,000	09/15/92- 09/30/94
University of California Riverside, CA 92521 Title: Identification and Isolation of Pathogenicity Genes from <i>Colletotrichum magna</i>	R. Rodriguez	92-37303-7713	\$ 100,000	09/01/92- 08/31/94
California Polytechnic State University Foundation San Luis Obispo, CA 93407 Title: Destruction of Microorganisms by Ozone During Food Processing Operations	B. Hampson J. Montecalvo	92-37207-8181	\$ 49,740	09/15/92- 09/30/94
University of Colorado Colorado Springs, CO 80933 Title: Aminolevulinate Synthesis in <i>Arabidopsis</i>	S. Berry-Lowe	92-37301-7747	\$ 90,000	09/15/92- 09/30/94
The Connecticut Agricultural Experiment Station New Haven, CT 06504 Title: Relationship of Elevated Catalase to O ₂ -Resistant Photosynthesis in C3 Plants	I. Zelitch	92-37301-7443	\$ 75,000	09/01/92- 08/31/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
The Connecticut Agricultural Experiment Station New Haven, CT 06504 Title: Genetic Dissection of Leaf Development	N. McHale	92-37304-7912	\$ 97,500	09/01/92-08/31/94
Yale University New Haven, CT 06511 Title: Genetic Analysis of Floral Development in Arabidopsis	V. Irish	92-37304-7716	\$ 220,000	09/01/92-08/31/95
University of Connecticut Storrs, CT 06269-2086 Title: Effect of Dietary Lipid on Carotenoid Absorption	R. Clark H. Furr	92-37200-7703	\$ 136,596	08/15/92-08/31/94
University of Connecticut Storrs, CT 06269-2086 Title: The Role of Cell Wall Bound Invertase in Photosynthatae Partitioning	J. Gogarten M. Lynes	92-37306-7691	\$ 100,000	09/01/92-08/31/94
University of Connecticut Storrs, CT 06269-2086 Title: Placental Uptake and Transfer of Carotenoids	H. Furr	92-37207-8117	\$ 50,000	09/15/92-09/30/94
University of Connecticut Storrs, CT 06269-2086 Title: Functional Characteristics of Proteoglycans in Meat	S. Velleman L. Faustman	92-37501-8210	\$ 45,992	09/15/92-09/30/94
Mercer University Macon, GA 31207 Title: Landscape Vegetation Patterns and Deer Abundance in Northern Wisconsin	J. Shepherd	92-37106-8294	\$ 49,992	09/15/92-09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Hawaii at Manoa Honolulu, HI 96822 Title: Molecular and Genetic Methods for Plant Pathogenic Bacteria	A. Alvarez	92-37311-8295	\$ 58,554	09/15/92-09/30/94
University of Hawaii, Manoa Honolulu, HI 96822 Title: Characterization of a Heat Shock-Induced Calmodulin-Binding Protein	H. Harrington	92-37100-7737	\$ 132,000	09/01/92-08/31/95
University of Hawaii, Manoa Honolulu, HI 96822 Title: Serotype 4b-specific Surface Antigens of Listeria Causing Epidemic and Sporadic Disease	S. Kathariou	92-37201-8095	\$ 200,000	09/15/92-09/30/94
Cornell College Mount Vernon, IA 52314-1098 Title: Molecular Basis of Plant Strategies	C. Tepper	92-37311-8133	\$ 49,539	09/15/92-09/30/94
University of Idaho Moscow, ID 83843 Title: Spray Booth for Accurate Herbicide Application	C. Eberlein	92-37311-8149	\$ 7,640	09/15/92-09/30/93
University of Idaho Moscow, ID 83843 Title: Airfuge for Isolation of Messenger RNA from Preimplantation Embryos	J. Butler	92-37208-8121	\$ 5,545	09/15/92-09/30/93
University of Idaho Moscow, ID 83843 Title: Computerized HPLC System for Measurement of Plant Secondary Metabolites	S. Quisenberry	92-37311-8132	\$ 25,989	09/15/92-09/30/93

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Idaho Moscow, ID 83843 Title: Intrinsic Resistance of <i>Listeria monocytogenes</i> to Food Antimicrobial Agents	P. Davidson	92-37201-8097	\$ 80,199	09/15/92- 09/30/94
University of Idaho Moscow, ID 83843 Title: The Molecular Structure & Function of Shiga-like Toxin from <i>Escherichia coli</i>	C. Bohach	92-37201-8096	\$ 150,000	09/15/92- 09/30/95
University of Idaho Moscow, ID 83843 Title: Improving Rural Economic Models: Trade Hierarchies and Selective Survey Work	M. Robison M. Lahr	92-37401-8282	\$ 76,152	09/15/92- 09/30/95
University of Idaho Moscow, ID 83843 Title: Effect of Resource Pattern on Spatial Spread of a Fungal Entomopathogen	G. Knudsen	92-37311-8198	\$ 49,410	09/15/92- 09/30/94
University of Idaho Moscow, ID 83843 Title: Molecular and Cellular Analysis of the Transition to Flowering in Pooid Grasses	N. Federspiel A. Sylvester	92-37106-8033	\$ 50,000	09/15/92- 09/30/94
Butler University Indianapolis, IN 46208 Title: Introduction of Bacterial Cyclopropane Fatty Acid Synthase to Plants	K. Schmid	92-37311-8247	\$ 50,000	09/15/92- 09/30/94
Southern University & A&M College Baton Rouge, LA 70813 Title: Gas Exchanges and Growth of Urban Trees Under Stressed Environments	Y. Qi C. Blanche	92-37106-8085	\$ 10,880	09/15/92- 09/30/93

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Boston College Chestnut Hill, MA 02167 Title: Proteins in the Oxygen Barrier of Alfalfa Root Nodules	M. Dunn	92-37305-7719	\$ 60,000	09/01/92- 08/31/94
University of Maine Orono, ME 04469-5715 Title: Effects of Soluble Organic Matter on Al-PO4 Precipitation Kinetics	T. Ohno M. Erich	92-37106-8238	\$ 48,624	09/15/92- 09/30/94
University of Maine Orono, ME 04469-5715 Title: Equipment for Studying Climate Change Influences on Cold Tolerance of Trees	W. Livingston A. White	92-37106-8086	\$ 5,331	09/15/92- 09/30/93
University of Maine Orono, ME 04469-5715 Title: Wood Processing with Supercritical Fluids. Direct Impregnation and in-situ Precipitation of Polymers and Additives	E. Kiran	92-37103-7989	\$ 105,000	09/15/92- 09/30/94
University of Maine Orono, ME 04469-5715 Title: Wood Properties and Yield of Northern Conifers Grown Under Short Rotations	R. Shepard R. Rice	92-37103-8031	\$ 90,000	09/15/92- 09/30/95
University of Maine Orono, ME 04469-5715 Title: Indicators of Forest Ecosystem Response to Experimental Soil Warming	I. Fernandez	92-37101-7978	\$ 174,137	09/15/92- 09/30/94
Colby College Waterville, ME 04901 Title: Translational Control Mechanisms in Volvox Development	D. Bourgaize	92-37311-8134	\$ 49,992	09/15/92- 09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Central Michigan University Mt. Pleasant, MI 48859 Title: Plant-Parasitic Nematode Gene Structure and the Arabidopsis-Nematode Model System	C. Novitski	92-37311-8199	\$ 49,973	09/15/92- 09/30/94
University of Southern Mississippi Hattiesburg, MS 39406 Title: Acquisition of a Liquid Scintillation Counter	G. Cannon S. Heinhorst	92-37311-7942	\$ 13,900	09/15/92- 09/30/93
University of Southern Mississippi Hattiesburg, MS 39406 Title: Phenotypic Multi-drug Resistance in the Fungus Mucor	G. Shearer	92-37208-8186	\$ 50,000	09/15/92- 09/30/94
University of Mississippi Medical Center Jackson, MS 39216 Title: Biological and Immunological Aspects of Channel Catfish Virus	V. Chinchar N. Miller	92-37208-8187	\$ 50,000	09/15/92- 09/30/94
Agri. & Forestry Expt. Station Mississippi State University Mississippi State, MS 39762 Title: Molecular Studies of Heat Tolerance in Agrostis palustris	D. Luthe	92-37100-7671	\$ 100,000	09/15/92- 09/30/94
Agri. & Forestry Expt. Station Mississippi State University Mississippi State, MS 39762 Title: Infectious Cycle and Pathogenesis of Channel Catfish Virus (CCV) and TK-CCV	L. Hanson J. Boyle S. Jack	92-37204-7925	\$ 100,000	09/15/92- 09/30/95
Agri. & Forestry Expt. Station Mississippi State University Mississippi State, MS 39762 Title: Enhanced Rural Development Research Using Scientific Visualization Techniques	F. Howell	92-37402-8144	\$ 30,132	09/15/92- 09/30/93

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Mississippi State University Mississippi State, MS 39762 Title: Dietary Modulation of Endocrine and Metabolic Responses During Infancy	R. Buddington	92-37207-8182	\$ 50,000	09/15/92- 09/30/94
Agri. & Forestry Expt. Station Mississippi State University Mississippi State, MS 39762 Title: Genetic Linkage of Molecular Markers in Sweetpotato	P. Thompson	92-37311-8135	\$ 49,992	09/15/92- 09/30/94
Montana State University Bozeman, MT 59717 Title: Molecular Mechanisms of Dormancy Expression in <i>Avena fatua</i>	W. Dyer	92-37303-7614	\$ 100,000	09/01/92- 08/31/94
Montana State University Bozeman, MT 59717 Title: Identification, Cloning and Immunogenicity of Adhesions of <i>Tritrichomonas foetus</i>	D. Burgess B. Granger	92-37204-7772	\$ 190,000	09/15/92- 09/30/95
Montana State University Bozeman, MT 59717 Title: Disruption of the Pathogens Sexual Cycle to Control Fungal Plant Disease	J. Sherwood	92-37311-7974	\$ 50,000	09/15/92- 09/30/94
Montana State University Bozeman, MT 59717 Title: Repetitive DNA Variation and Pivotal-Differential Evolution of Wild Wheats	L. Talbert	92-37311-8137	\$ 44,688	09/15/92- 09/30/94
Montana State University Bozeman, MT 59717 Title: Seasonal Transmission of <i>Fasciola hepatica</i> : Implications for Biological Control	S. Knapp M. Abrahamsen	92-37208-8188	\$ 49,439	09/15/92- 09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Montana State University Bozeman, MT 59717	M. White M. Abrahamsen C. Speer	92-37204-8179	\$ 160,000	09/15/92- 09/30/94
Title: Molecular Identification of Targets for Coccidiosis Treatments				
Montana State University Bozeman, MT 59717	J. Wraith	92-37106-8087	\$ 50,000	09/15/92- 09/30/94
Title: Redistribution of Water and Chemicals by Passive Transport Through Plant Roots				
Montana State University Bozeman, MT 59717	T. Blake T. McCoy L. Talbert	92-37311-8136	\$ 43,160	09/15/92- 09/30/93
Title: Improving Genome Analysis Capabilities at Montana State University				
University of Montana Missoula, MT 59812	D. Pilson	92-37302-8130	\$ 100,000	09/15/92- 09/30/94
Title: The Effect of Multiple Herbivores on Selection for Plant Resistance				
University of North Carolina Charlotte, NC 28223	S. Schneider	92-37106-7990	\$ 49,609	09/15/92- 09/30/94
Title: Regulation of Migration in the African Honey Bee, <i>Apis mellifera scutellata</i>				
University of North Carolina Charlotte, NC 28223	T. Steck	92-37311-8063	\$ 49,951	09/15/92- 09/30/94
Title: Affect of Nonculturability on <i>Agrobacterium</i> Virulence-Associated Processes				
University of North Carolina Greensboro, NC 27412-5001	M. Failla	92-37200-7544	\$ 231,703	08/01/92- 07/31/95
Title: Functions and Metabolism of Copper in T Lymphocytes				

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of North Carolina Greensboro, NC 27412-5001 Title: Gamma Counter to Study the Transport and Metabolism of Essential Minerals	M. Failla	92-37207-8119	\$ 11,908	09/15/92- 09/30/93
East Carolina University Greenville, NC 27858-4353 Title: Cellular Development of the GI Tract of Hybrid Striped Bass Larvae	M. Gallagher	92-37208-8190	\$ 71,902	09/15/92- 09/30/93
Agricultural Expt. Station North Dakota State University Fargo, ND 58105 Title: Acquisition of a DNA Gel Reader/Image Analyzer for Agricultural Genetic Studies	A. Oleson	92-37311-8065	\$ 17,216	09/15/92- 09/30/93
Agricultural Expt. Station North Dakota State University Fargo, ND 58105 Title: Equipment Enhancement of Molecular Virology Research	E. Berry	92-37208-8123	\$ 35,230	09/15/92- 09/30/93
Agricultural Expt. Station North Dakota State University Fargo, ND 58105 Title: Structure and Functional Properties of Pectin from Sunflower Heads	K. Chang	92-37500-7970	\$ 100,000	09/15/92- 09/30/94
Agricultural Expt. Station North Dakota State University Fargo, ND 58105 Title: Bench-scale Solvent-extraction Unit for Research into Value-Added Products	D. Wiesenborn N. Hettiarachchy	92-37501-8147	\$ 50,000	09/15/92- 09/30/93
Agricultural Expt. Station North Dakota State University Fargo, ND 58105 Title: Economics and Strategy for U.S. Value-Added Wheat Exports	F. Dooley W. Wilson	92-37400-8300	\$ 120,000	09/15/92- 09/30/95

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station North Dakota State University Fargo, ND 58105 Title: Molecular Mapping Complex Disease Resistance Loci in Bean	P. McClean	92-37311-8064	\$ 50,000	09/15/92- 09/30/94
Agricultural Expt. Station North Dakota State University Fargo, ND 58105 Title: Molecular Marking of a Stem Rust Resistance Gene in Barley	J. Rasmussen B. Steffenson	92-37311-7943	\$ 49,982	09/15/92- 09/30/94
Agricultural Expt. Station North Dakota State University Fargo, ND 58105 Title: Stair-Step Energy Restriction-Mediated Control of Milk Protein Gene Expression	C. Park	92-37208-8122	\$ 49,796	09/15/92- 09/30/94
University of New Hampshire Durham, NH 03824 Title: Mapping the Strawberry Genome	T. Davis J. Pollard G. Galletta	92-37300-7442	\$ 180,000	07/01/92- 06/30/95
University of New Hampshire Durham, NH 03824 Title: Quantitation of UV-B Induced and P.A.R. Modified Effects on Leaf Anatomy and Cytology	W. Fagerberg	92-37106-8088	\$ 24,111	09/15/92- 09/30/94
Board of Regents New Mexico State University Las Cruces, NM 88003 Title: Mechanism of Auxin-like Herbicide Resistance in Yellow Starthistle	T. Sterling N. Lownds	92-37303-7863	\$ 50,000	09/01/92- 08/31/93
Board of Regents New Mexico State University Las Cruces, NM 88003 Title: HPLC for Postharvest Environmental Physiology	M. Wall R. Berghage	92-37106-8089	\$ 25,620	09/15/92- 09/30/93

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station New Mexico State University Las Cruces, NM 88003 Title: Purchase of Computer Controlled Video Microscopy System	C. Liddell C. Biles	92-37311-8059	\$ 35,527	09/15/92- 09/30/93
Agricultural Expt. Station New Mexico State University Las Cruces, NM 88003 Title: Mexican Consumer Preferences for U.S. Food Products	C. Falk R. Skaggs	92-37402-8201	\$ 49,941	09/15/92- 09/30/94
Board of Regents New Mexico State University Las Cruces, NM 88003 Title: Atrazine Transport and Distribution in a Field Soil Under Different Irrigation Regimes	T. Sammis D. Smeal	92-37106-8090	\$ 48,860	09/15/92- 09/30/94
Agricultural Expt. Station New Mexico State University Las Cruces, NM 88003 Title: Water for Rural Economic Development	C. Eastman J. King	92-37402-8202	\$ 49,927	09/15/92- 09/30/94
Board of Regents New Mexico State University Las Cruces, NM 88003 Title: Endocrine and Ovarian Characteristics of Ewes Receiving Glucose Before Breeding	D. Hallford D. Hawkins	92-37208-8189	\$ 50,000	09/15/92- 09/30/94
Board of Regents New Mexico State University Las Cruces, NM 88003 Title: Purification of the Enzyme and Isolation of cDNA Clones for Lysophosphatidylcholine acyltransferase	R. Rajasekaran J. Kemp	92-37311-8296	\$ 50,000	09/15/92- 09/30/94
Research Foundation of State University of New York Albany, NY 12201 Title: Degradation and Transport of Organophosphorus Pesticides	P. Jeffers	92-37102-7407	\$ 105,000	07/01/92- 06/30/95

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Wells College Aurora, NY 13026 Title: The I Gene of Bean and Broad Spectrum Potyvirus Resistance	C. Collmer	92-37311-8062	\$ 50,000	09/15/92- 09/30/94
State University of New York, Binghamton Binghamton, NY 13902 Title: Development of a Gene Transfer System in Aerobic Nitrogen Fixing Unicellular Cyanobacteria	K. Reddy	92-37311-8060	\$ 50,000	09/15/92- 09/30/94
State University of New York, Albany Albany, NY 12201 Title: A Comparison of Zein mRNA Distribution in Normal and Mutant Genotypes of Maize	C. Lending	92-37311-8061	\$ 49,780	09/15/92- 09/30/94
Vassar College Poughkeepsie, NY 12601 Title: Genetic and Environmental Effects on Willow Resistance to Herbivores in Relation to Foliar Chemistry	R. Fritz C. Nichols-Orians	92-37302-8053	\$ 84,544	09/15/92- 09/30/94
Syracuse University Syracuse, NY 13210 Title: Enzymatic Conversion of Carotenoids to Retinoids in Green Algae	J. Saranak	92-37207-8118	\$ 50,000	09/15/92- 09/30/94
University of Dayton Dayton, OH 45469 Title: Regulation of Photosynthesis in Response to Light and CO ₂	J. Servaites	92-37306-7697	\$ 100,000	09/15/92- 09/30/94
Duquesne University Pittsburgh, PA 15282 Title: Mechanisms for Surviving Starvation by the Soft Tick, Ornithodoros turicata	O. Adeyeye	92-37208-8311	\$ 50,000	09/15/92- 09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Swarthmore College Swarthmore, PA 19081 Title: The NPA Receptor: Characterization, Natural Ligands and Mechanism of Action	M. Jacobs	92-37304-7873	\$ 110,000	09/01/92- 08/31/94
University of Rhode Island Kingston, RI 02881 Title: Larval Striped Bass: Development and Regulation of Nutrient Absorption	J. Specker D. Bengtson	92-37206-7848	\$ 180,000	09/01/92- 08/31/95
University of Rhode Island Kingston, RI 02881 Title: Molecular Genetic Analysis of Senescence and "Rejuvenation" in Soybean Cotyledons	J. Chandlee W. Krul	92-37311-8138	\$ 50,000	09/15/92- 09/30/94
University of Rhode Island Kingston, RI 02881 Title: An In Vitro Study on the Interaction of Salmonid Phagocytes and <i>Renibacterium salmoninarum</i>	J. Bodammer	92-37208-8124	\$ 31,296	09/15/92- 09/30/94
Medical University of South Carolina Charleston, SC 29425 Title: Genetic Basis of the Antibody Response of the Duck	G. Warr	92-37208-8191	\$ 50,000	09/15/92- 09/30/94
Clemson University Clemson, SC 29634-5326 Title: Structure/Function Investigation on the Carboxysome-a Prokaryotic Organelle	J. Shively	92-37306-7663	\$ 120,000	08/01/92- 07/31/94
Clemson University Clemson, SC 29634-5326 Title: Water Potential and its Relationship to the Hygroscopic and Water Flow Properties of Wood	P. Peralta	92-37103-7983	\$ 70,000	09/15/92- 09/30/95

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Clemson University Clemson, SC 29634-5326 Title: Rural Economic Development through Enhanced Linkages to Metropolitan Areas	D. Barkley M. Henry	92-37401-8251	\$ 122,032	09/15/92- 09/30/94
Clemson University Clemson, SC 29634-5326 Title: Immune Responses of Channel Catfish as Selective Biological Markers of Pesticide Induced Stress	S. Hayasaka	92-37208-8193	\$ 45,500	09/15/92- 09/30/94
Clemson University Clemson, SC 29634-5326 Title: Enhancement of Bacteriocin Production to Improve Microbial Food Safety	S. Barefoot T. Hughes	92-37207-8183	\$ 49,795	09/15/92- 09/30/94
Clemson University Clemson, SC 29634-5326 Title: Modification and Utilization of Grain Protein Films	R. Testin P. Vergano H. Park	92-37500-8208	\$ 141,000	09/15/92- 09/30/95
University of South Carolina Columbia, SC 29208 Title: The Influence of Hostplant Resource Availability on Chemical Defense Against Insect Herbivores	D. Lincoln	92-37311-8139	\$ 34,056	09/15/92- 09/30/93
South Dakota State University Brookings, SD 57007 Title: Analysis of Porcine Intestinal Receptors to Which Escherichia Coli K88 Pili Bind	D. Francis B. Bosworth A. Erickson T. Casey	92-37204-7774	\$ 160,000	09/15/92- 09/30/95
South Dakota State University Brookings, SD 57007 Title: Molecular Genetic Variability Within the Soilborne Plant Pathogen, <i>Macrophomina phaseolina</i>	T. Chase	92-37311-8067	\$ 49,488	09/15/92- 09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
South Dakota State University Brookings, SD 57007 Title: Near Infrared Spectroscopy (NIRS) Equipment for Soybean Quality Analysis	R. Scott	92-37311-8066	\$ 5,500	09/15/92-09/30/93
South Dakota State University Brookings, SD 57007 Title: Ratio Mass Spectrometer to Study C & N Transformations	D. Clay D. Rickerl K. Kephart	92-37106-8172	\$ 50,000	09/15/92-09/30/93
South Dakota State University Brookings, SD 57007 Title: Pathogenetic Mechanism of Swine Infertility and Respiratory Syndrome (SIRS) Virus	D. Benfield J. Collins D. Hurley	92-37204-8045	\$ 150,000	09/15/92-09/30/94
South Dakota State University Brookings, SD 57007 Title: Grazing and Drought Tolerance of Grazing Ecotypes: Establishment	P. Johnson A. Boe	92-37106-8240	\$ 48,200	09/15/92-09/30/94
South Dakota State University Brookings, SD 57007 Title: Application of the Barber-Cushman Model in Improving P Efficiency in Field Corn	H. Woodard	92-37106-8242	\$ 44,460	09/15/92-09/30/94
South Dakota State University Brookings, SD 57007 Title: Interaction of Superantigens with Lymphocytes from Cattle and Swine	D. Hurley	92-37208-8192	\$ 49,943	09/15/92-09/30/94
South Dakota State University Brookings, SD 57007 Title: Spatial Variability of Selenium in Potentially Irrigable Glacial Till Soils	J. Doolittle R. Kohl D. DeBoer	92-37106-8091	\$ 50,000	09/15/92-09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
South Dakota State University Brookings, SD 57007 Title: Gene Expression During Photoperiodic Induction of Bud Dormancy in Grapes	A. Fennell	92-37106-8241	\$ 49,288	09/15/92- 09/30/94
Prairie View A&M Research Foundation College Station, TX 77843 Title: Maternal Contributions to Embryo Recognition	G. Newton	92-37208-8194	\$ 50,000	09/15/92- 09/30/94
Prairie View A&M University Prairie View, TX 77446-2886 Title: Establishing a Meat Type Goat Population at Prairie View A&M University	J. Dzakuma E. Risch	92-37208-8195	\$ 50,000	09/15/92- 09/30/94
University of Vermont Burlington, VT 05405 Title: Energy Requirements in Young Children	M. Goran	92-37200-7543	\$ 120,000	08/01/92- 07/31/94
University of Vermont Burlington, VT 05405 Title: Novel Methods to Trace the Follicular Origins of Luteal Cells	N. Kenny F. Aulettta	92-37203-7768	\$ 97,862	09/01/92- 08/31/93
University of Vermont Burlington, VT 05405 Title: Role of Pollution - Induced Calcium Deficiencies in Freezing Injury of Red Spruce	D. DeHayes J. Cumming G. Hawley	92-37100-7740	\$ 130,000	09/01/92- 08/31/94
University of Vermont Burlington, VT 05405 Title: Predicting the Occurrence and Behavior of Tridecameric Aluminum in Forest Soils	D. Ross R. Bartlett	92-37106-8173	\$ 41,950	09/15/92- 09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Strengthening Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
West Virginia Univ. Res. Corp. West Virginia University Morgantown, WV 26506 Title: Post-Meiotic Gene Expression During Spermatogenesis: Regulation and Function	P. Challoner S. Moss	92-37205-8050	\$ 240,000	09/01/92-08/31/95
West Virginia Univ. Res. Corp. West Virginia University Morgantown, WV 26506 Title: Dynamic Mechanical Analyzer Instrumentation	M. Wolcott D. Gardner	92-37501-8148	\$ 50,000	09/15/92-09/30/93
West Virginia Univ. Res. Corp. West Virginia University Morgantown, WV 26506 Title: Validation of Equations to Measure Nonsteady-State in Vivo Kinetics of Metabolism	R. Russell	92-37208-8126	\$ 49,929	09/15/92-09/30/94
West Virginia Univ. Res. Corp. West Virginia University Morgantown, WV 26506 Title: Equipment to Automate Sample Analysis by High Performance Liquid Chromatography	W. Hoover D. Colburn	92-37208-8125	\$ 6,458	09/15/92-09/30/93
University of Wyoming Laramie, WY 82071 Title: Effect of Total and n3 Polyunsaturated Fat on Physiologic Parameters	K. Broughton	92-37200-7726	\$ 69,963	09/01/92-08/31/93
University of Wyoming Laramie, WY 82071 Title: Hormonal and Growth Effects on Glycerolipid Synthesis in Ovine Adipose Tissue	D. Rule	92-37206-7963	\$ 175,000	09/01/92-08/31/95
University of Wyoming Laramie, WY 82071 Title: Assessment of the Export Market Opportunities for Buffalo Meat	E. Bradley S. Torok	92-37400-8304	\$ 116,000	09/15/92-09/30/94

Total : \$ 9,208,434

**DOE/NSF/USDA JOINT PROGRAM ON COLLABORATIVE
RESEARCH IN PLANT BIOLOGY**

The DOE/NSF/USDA Joint Program on Collaborative Research in Plant Biology was initiated in recognition of the importance of plant biology research to the well-being of the Nation. The Program goals are to strengthen the foundation of plant science by fostering multidisciplinary research through excellence in training and by encouraging research coordination and communication among plant scientists.

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
 Triagency Plant Biology Prog.

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671 Title: Research Collaboration Group on Molecular Mapping in Wheat and its Relatives	C. Qualset	92-37310-7664	\$ 117,240	09/01/92- 08/31/93
University of California Davis, CA 95616-8671 Title: The Bodega Field Conferences: A Series of Collaborate Workshops Focused on Research with Lupinus Arboreus & Associated.....	J. Clegg B. Bentley	92-37105-7674	\$ 50,000	09/01/92- 08/31/93
University of Missouri Columbia, MO 65211 Title: Research Collaboration Group in Plant Protein Phosphorylation	D. Randall	92-37105-7675	\$ 50,000	09/01/92- 08/31/93
University of Nebraska Lincoln, NE 68588-0430 Title: Genetic Basis for Pathogenicity in the Genus Colletotrichum	M. Dickman	92-37310-7821	\$ 50,000	09/01/92- 08/31/93
University of Washington Seattle, WA 98195 Title: Molecular Genetics of Populus: Collaborative Network	R. Stettler H. McNabb P. Heilman	92-37105-7764	\$ 100,000	09/01/92- 08/31/93

Total : \$ 367,240

CROSS-DIVISIONAL OR CROSS-PROGRAMATIC TOPIC

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FORESTRY-RELATED RESEARCH

Research which has as its major goal the study of forest and forest-related topics is supported in several Program Areas within the Division of Natural Resources and the Environment and within the Division of Plant Systems. Awards so identified are listed separately here; they also appear in the listing for the supporting Program Area.

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Forestry Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Auburn University Auburn University, AL 36849	G. Glover R. Mitchell D. Gjerstad	92-37101-7434	\$ 87,147	09/15/92- 09/30/94
Title: Extension of Neighborhood Approach to Study Interference Among Three Perennial Species				
The Board of Trustees University of Arkansas Fayetteville, AR 72701	J. Murphy	92-37106-8171	\$ 50,000	09/15/92- 09/30/94
Title: Carbon Partitioning and Plastid Ontogeny in Germinating Pine Seedlings				
Northern Arizona University Flagstaff, AZ 86011	T. Whitham C. Gehring	92-37302-7854	\$ 159,160	09/15/92- 09/30/95
Title: Mycorrhizae and Herbivory: Interactions in Resistant, Susceptible & Hybrid Pines				
University of Arizona Tucson, AZ 85721	G. McPherson	92-37101-7435	\$ 161,000	08/01/92- 07/31/96
Title: Shifts in Lower Treeline: Identifying Casual Factors				
University of California Berkeley, CA 94720	D. Neale	92-37300-7589	\$ 210,000	09/15/92- 09/30/95
Title: Molecular Marker and Quantitative Trait Mapping Loblolly Pine				
University of California Davis, CA 95616	M. Barbour	92-37101-7420	\$ 75,418	07/15/92- 07/31/94
Title: Predictors of Early Succession and Regeneration in California Red Fir Forests				
San Francisco State University San Francisco, CA 94132	V. Parker	92-37101-7421	\$ 170,167	07/15/92- 07/31/95
Title: Forest Invasion of Chaparral				

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Forestry Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Workshop on Earthworm Ecology in Forest/Rangeland/Crop Ecosystems in North America	P. Hendrix	92-37101-7394	\$ 10,000	07/01/92- 06/30/93
Institute of Paper Science and Technology Atlanta, GA 30318 Title: Fundamental Studies of the Photo-Initiated Oxidation of Lignin in Wood Fibers	A. Ragauskas	92-37103-8237	\$ 102,000	09/15/92- 09/30/94
Mercer University Macon, GA 31207 Title: Landscape Vegetation Patterns and Deer Abundance in Northern Wisconsin	J. Shepherd	92-37106-8294	\$ 49,992	09/15/92- 09/30/94
Purdue Research Foundation West Lafayette, IN 47907 Title: Compensatory Mechanisms of Hardwood Forest Communities in a Changing Climate	A. Gillespie	92-37101-7437	\$ 64,223	08/01/92- 07/31/94
Southern University & A&M College Baton Rouge, LA 70813 Title: Gas Exchanges and Growth of Urban Trees Under Stressed Environments	Y. Qi C. Blanche	92-37106-8085	\$ 10,880	09/15/92- 09/30/93
Southern Forest Expt. Station USDA Forest Service New Orleans, LA 70113 Title: Evaluation of the Area-Wide Efficacy of Direct Control Tactics for Southern Pine Beetles	P. Turchin J. Hayes	92-37302-7606	\$ 150,000	08/01/92- 07/31/95
University of Maryland College Park, MD 20742 Title: Implications of Increasing UV-B Radiation on Loblolly Pine and Sweetgum	J. Sullivan A. Teramura	92-37100-7530	\$ 174,200	09/01/92- 08/31/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Forestry Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Maine Orono, ME 04469-5715 Title: Nitrogen Fixation in Actinorhizal Plants: Regulation of Oxygen	J. Tjepkema	92-37305-7758	\$ 60,000	09/01/92-08/31/94
University of Maine Orono, ME 04469-5715 Title: Equipment for Studying Climate Change Influences on Cold Tolerance of Trees	W. Livingston A. White	92-37106-8086	\$ 5,331	09/15/92-09/30/93
University of Maine Orono, ME 04469-5715 Title: Wood Properties and Yield of Northern Conifers Grown Under Short Rotations	R. Shepard R. Rice	92-37103-8031	\$ 90,000	09/15/92-09/30/95
University of Maine Orono, ME 04469-5715 Title: Indicators of Forest Ecosystem Response to Experimental Soil Warming	I. Fernandez	92-37101-7978	\$ 174,137	09/15/92-09/30/94
Michigan State University East Lansing, MI 48824 Title: Speciation of Solution Nitrogen Losses from Agricultural and Forested Landscapes	L. Hedin G. Robertson	92-37102-7404	\$ 174,000	07/01/92-06/30/94
Michigan State University East Lansing, MI 48824 Title: Respiratory Defects in Hypovirulent Strains of Cryphonectria parasitica	D. Fulbright H. Bertrand	92-37303-7754	\$ 120,000	09/01/92-09/30/94
Michigan Technological University Houghton, MI 49931 Title: Expression of Lignin - Specific Antisense Gene to Regulate Lignin Biosynthesis	V. Chiang G. Podila	92-37301-7598	\$ 105,000	09/01/92-08/31/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Forestry Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Michigan Technological University Houghton, MI 49931 Title: Biochemistry and Molecular Biology of Monolignol Biosynthetic Enzymes in Woody Species	W. Campbell V. Chiang	92-37103-7945	\$ 120,000	09/15/92- 09/30/94
University of Minnesota Minneapolis, MN 55415 Title: Spatial Dynamics of Nutrient and Sediment Removal Processes in Riverine Wetlands	J. Schubauer-Berigan C. Johnston S. Bridgeman	92-37102-7406	\$ 200,000	09/01/92- 08/31/94
University of Missouri Columbia, MO 65211 Title: Drought Tolerance Mechanisms in Black Walnut (<i>Juglans nigra</i> L.)	S. Pallardy	92-37100-7647	\$ 153,600	09/01/92- 08/31/95
Duke University Durham, NC 27706 Title: Response of Western Montane Forest Ecosystems to Global Climate Change	W. Schlesinger	91-37101-6724++	\$ 127,000	09/01/91- 08/31/93
Duke University Durham, NC 27706 Title: Response of Temperate and Tropical N2-Fixing Trees to Global Environmental Change	R. Thomas D. Richter	92-37100-7535	\$ 172,300	08/01/92- 07/31/94
North Carolina State University Raleigh, NC 27695-7003 Title: Hydrology and Water Quality of a Natural Forested Wetland in the Coastal Plain	G. Chescheir R. Skaggs J. Gilliam	92-37102-7408	\$ 199,000	07/01/92- 06/30/95
North Carolina State University Raleigh, NC 27695-7003 Title: Genomic Mapping of Host Factors for Fusiform Rust Resistance	R. Sederoff H. Amerson D. O'Malley	92-37300-7548	\$ 210,000	09/01/92- 08/31/95

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NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Forestry Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
North Carolina State University Raleigh, NC 27695-7003	D. O'Malley S. McKeand R. Sederoff	92-37300-7549	\$ 220,000	09/01/92- 08/31/95
Title: Half-sib RAPD Analysis of QTLs Underlying Early Shoot Growth in Loblolly Pine				
North Carolina State University Raleigh, NC 27695-7003	A. Stomp B. Bergmann	92-37300-7850	\$ 180,000	09/01/92- 08/31/95
Title: Genetic Transformation of <i>Pinus radiata</i>				
Rutgers, The State University Piscataway, NJ 08855-1089	J. Ehrenfeld W. Zhu	92-37101-7977	\$ 106,453	09/01/92- 08/31/94
Title: The Effects of Ectomycorrhizae on Decomposition in Coniferous Forest Soil				
Rutgers, The State University Piscataway, NJ 08855-1089	C. Frenkel K. Schaich J. Fagan	92-37103-7985	\$ 110,000	09/15/92- 09/30/94
Title: Origin of Oxygen Signal in <i>Phanerocheate crysosporium</i>				
Cornell University Ithaca, NY 14853	M. Milgroom	91-37303-5939++	\$ 34,000	08/01/91- 07/31/93
Title: Transmission of Hypovirulence in Populations of <i>Cryphonectria parasitica</i>				
Cornell University Ithaca, NY 14853	T. Fahey	92-37101-7438	\$ 95,000	07/01/92- 06/30/95
Title: Response of Pin Cherry-Northern Hardwood Stands to Changes in Resource Availability				
Boyce Thompson Institute for Plant Research, Inc. Ithaca, NY 14853	D. Roberts R. Staples R. Leger	92-37302-7791	\$ 180,000	08/15/92- 08/31/94
Title: Genes Related to Pathogenesis in a Fungal Entomopathogen, <i>Metarrhizium anisopliae</i>				

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NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
 Forestry Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Vassar College Poughkeepsie, NY 12601 Title: Genetic and Environmental Effects on Willow Resistance to Herbivores in Relation to Foliar Chemistry	R. Fritz C. Nichols-Orians	92-37302-8053	\$ 84,544	09/15/92- 09/30/94
State University of New York, Albany Albany, NY 12201 Title: Pathogen Incidence and Rate of Spread: Impact of Habitat and Landscape Attributes	D. Leopold J. Castello C. Davis	92-37101-8029	\$ 200,000	09/15/92- 09/30/95
Oregon State University Corvallis, OR 97331 Title: Long-Term Vegetation, Disturbance, and Climate Dynamics in Western Oregon	P. Schoonmaker	92-37101-7462	\$ 143,737	07/01/92- 06/30/94
Oregon State University Corvallis, OR 97331 Title: Measuring N2 Fixation and N Cycling in Pure and Mixed Red Alder Stands Using 15N	D. Myrold T. Righetti D. Hibbs	92-37101-7566	\$ 190,000	09/01/92- 08/31/95
Oregon State University Corvallis, OR 97331 Title: Physiology and Molecular Biology of Poplar Bark Storage Proteins	T. Chen G. Coleman	92-37100-7672	\$ 180,000	08/15/92- 08/31/95
Pennsylvania State University University Park, PA 16802 Title: Pathogen Tolerance in Lymantria dispar: Genetic and Maternal Effects Components	M. Rossiter J. Frazier	91-37302-6292++	\$ 70,000	08/01/91- 07/31/93
Gordon Res. Conference Kingston, RI 02881 Title: Gordon Conference on Quantitative Genetics & Biotechnology	F. Enfield	92-37300-7596	\$ 5,000	09/15/92- 09/30/93

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NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Forestry Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station University of Tennessee Knoxville, TN 37901-1071 Title: Nitrogen Dynamics and Nitrate Export From Southern Appalachian Forests	S. Nodvin H. Miegroet	92-37102-7409	\$ 170,000	07/01/92- 06/30/95
Texas A&M Research Foundation College Station, TX 77843 Title: Amelioration of Degraded Rain Forest Soils by Trees	R. Fisher	92-37101-7568	\$ 153,536	08/01/92- 07/31/95
Texas Tech University Lubbock, TX 79409-1035 Title: Exoenzyme Activities Underlying Lignocellulose Degradation: A Modeling Synthesis	D. Moorhead R. Sinsabaugh A. Linkins	92-37101-7569	\$ 86,248	08/01/92- 07/31/94
Utah State University Logan, UT 84322 Title: Microbial Assimilation of Nitrate Controls Nitrogen Loss from Forest Ecosystems	J. Stark	92-37101-7976	\$ 200,000	09/15/92- 09/30/95
University of Utah Salt Lake City, UT 84112 Title: Hydraulic Limitation of Gas Exchange and Drought Tolerance in Trees	J. Sperry J. Ehleringer	92-37100-7532	\$ 180,000	08/01/92- 07/31/95
University of Utah Salt Lake City, UT 84112 Title: Forest CO ₂ Cycling and Global CO ₂	J. Ehleringer	92-37101-7975	\$ 150,000	09/15/92- 09/30/94
Virginia Polytechnic Institute & State University Blacksburg, VA 24061-0429 Title: Evaluation of Riparian Wetlands as Naturally Occurring Decontamination Zones	D. Berry R. Reneau S. Mostaghimi R. Young	92-37102-7410	\$ 200,000	09/01/92- 08/31/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Forestry Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Virginia Polytechnic Institute and State University Blacksburg, VA 24061	R. Alscher B. Chevone J. Hess	92-37100-7534	\$ 5,700	08/01/92- 10/31/92
Title: Gaseous Pollutants and Plant Metabolism				
Virginia Polytechnic Institute and State University Blacksburg, VA 24061	S. Salom J. Carlson	92-37302-7641	\$ 112,845	09/01/92- 08/31/95
Title: Etiology of Procerum Root Disease and Evaluation of Antifeedants on its Vector the Pales Weevil				
University of Vermont Burlington, VT 05405	D. DeHayes J. Cumming G. Hawley	92-37100-7740	\$ 130,000	09/01/92- 08/31/94
Title: Role of Pollution - Induced Calcium Deficiencies in Freezing Injury of Red Spruce				
University of Vermont Burlington, VT 05405	D. Ross R. Bartlett	92-37106-8173	\$ 41,950	09/15/92- 09/30/94
Title: Predicting the Occurrence and Behavior of Tridecameric Aluminum in Forest Soils				
Washington State University Pullman, WA 99164-5045	R. Croteau	91-37302-6311++	\$ 70,000	08/01/91- 07/31/93
Title: Defense Reactions in Conifers: Oleoresinosis				
Washington State University Pullman, WA 99164-5045	N. Lewis M. Bernards	92-37304-7892	\$ 100,000	09/01/92- 08/31/94
Title: Suberin Biosynthesis & Structure: A New Approach				
University of Washington Seattle, WA 98195	R. Stettler H. McNabb P. Heilman	92-37105-7764	\$ 100,000	09/01/92- 08/31/93
Title: Molecular Genetics of Populus: Collaborative Network				

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ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Washington Seattle, WA 98195	H. Bradshaw R. Stettler G. Chastagner G. Newcombe	92-37300-7656	\$ 280,000	08/01/92- 07/31/95
Title: Mapping Quantitative Trait Loci in Populus				

Total : \$ 7,163,568

CROSS-DIVISIONAL OR CROSS-PROGRAMATIC TOPIC

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GLOBAL CHANGE RESEARCH

Research which has as its major goal the study of topics related to climate change is a part of the USDA commitment to the US Global Change Research Program. This research is supported in several Program Areas within the Division of Natural Resources and the Environment and within the Division of Plant Systems. Awards so identified are listed separately here; they also appear in the listing for the supporting Program Area.

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Global Change

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station University of Arkansas Fayetteville, AR 72701 Title: Protein - Protein Interactions in Photosynthesis	D. Davis	92-37306-7688	\$ 110,000	08/15/92- 08/31/94
University of Arizona Tucson, AZ 85721 Title: The Molecular Response to Salt Stress is Magnified in Roots	H. Bohnert	92-37100-7624	\$ 190,000	09/01/92- 08/31/95
USDA, ARS, Pacific West Area Albany, CA 94710 Title: Characterization of a Dehydration Stress Inducible Protein Kinase	M. Walker-Simmons J. Ried	92-37100-7540	\$ 120,000	09/01/92- 08/31/94
USDA, ARS, Pacific West Area Albany, CA 94710 Title: Stress Induced Phosphorylation of Polypeptides in Barley Plants	F. DuPont	92-37100-7669	\$ 120,000	09/01/92- 08/31/94
University of California, Berkeley Berkeley, CA 94720 Title: Photosystem-II Damage and Repair Cycle in Chloroplasts	A. Melis	92-37100-7529	\$ 106,400	09/01/92- 08/31/94
University of California Davis, CA 95616-8671 Title: Kinematics of Root Growth Under Water Stress and Mechanical Impedance	W. Silk	92-37100-7625	\$ 147,000	09/15/92- 09/30/95
University of California Davis, CA 95616-8671 Title: The Role of Ethylene in Salt- and Flooding-Induced Disorders in Tomato Plants	S. Yang	92-37100-7571	\$ 163,500	09/01/92- 08/31/95

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
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ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671 Title: Magnetic Properties of the Photosynthetic Oxygen Evolving Complex	R. Britt	92-37306-7689	\$ 120,000	08/15/92- 08/31/94
University of California Davis, CA 95616-8671 Title: The Bodega Field Conferences: A Series of Collaborate Workshops Focused on Research with Lupinus Arboreus & Associated.....	J. Clegg B. Bentley	92-37105-7674	\$ 50,000	09/01/92- 08/31/93
University of California, San Diego La Jolla, CA 92093-0003 Title: Anion Channels in Higher Plants	J. Schroeder	92-37304-7757	\$ 65,000	09/01/92- 08/31/93
University of California Riverside, CA 92521 Title: Integrated Control of Energy Metabolism and Protein Synthesis in Corn Under Hypoxic Stress	J. Roberts	92-37100-7626	\$ 190,000	09/01/92- 08/31/95
University of California Riverside, CA 92521 Title: Regulation of a Histone H1 Gene by Abscisic Acid During Drought Stress	E. Bray	90-37280-5645	\$ 125,000	09/01/90- 08/31/94
University of California Riverside, CA 92521 Title: Financial Support for the 16th Annual Symposium in Plant Physiology	T. Close E. Bray	92-37100-7572	\$ 6,000	09/01/92- 08/31/93
University of California Riverside, CA 92521 Title: Post-Transcriptional Regulation of the Hypoxic Stress Response of Maize	J. Bailey-Serres	90-37280-5663	\$ 120,000	09/01/90- 08/31/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
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ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
USDA/ARS Northern Plains Area Fort Collins, CO 80526	J. Morgan W. Knight W. Hunt	92-37100-7670	\$ 140,000	09/15/92- 09/30/94
Title: Responses of Mycotrophic C3 and C4 Rangeland Grasses to Atmospheric CO ₂ and Water				
University of Florida Gainesville, FL 32611	G. Bowes	91-37306-6000++	\$ 50,000	09/01/91- 08/31/93
Title: CO ₂ Concentrating Mechanisms in Photosynthesis				
Florida State University Tallahassee, FL 32306	W. Outlaw	92-37100-7573	\$ 120,000	09/15/92- 06/30/95
Title: Guard-cell Specific Gene Expression in Response to Water Stress and ABA				
University of Georgia Research Foundation, Inc. Athens, GA 30602	A. Purvis R. Shewfelt	92-37100-7833	\$ 120,000	09/15/92- 09/30/94
Title: Potential Mediation of Stress-induced Peroxidation in Plant Membranes by the Alternative Pathway				
University of Hawaii, Manoa Honolulu, HI 96822	H. Yamamoto	92-37100-7574	\$ 6,200	07/15/92- 07/31/92
Title: Conference on Photosynthetic Responses to the Environment				
University of Hawaii, Manoa Honolulu, HI 96822	H. Harrington	92-37100-7737	\$ 132,000	09/01/92- 08/31/95
Title: Characterization of a Heat Shock-Induced Calmodulin-Binding Protein				
Iowa State University of Science and Technology Ames, IA 50011	M. Spalding L. Marek	91-37306-6315	\$ 120,000	07/01/91- 06/30/94
Title: Chlamydomonas Mutants Defective in the CO ₂ -Concentrating System				

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Global Change

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Iowa State University of Science and Technology Ames, IA 50011 Title: Mitochondrial Changes Accompanying Chilling Injury and Acclimation to it in Maize Seedlings	C. Stewart T. Prasad	92-37100-7646	\$ 120,000	08/01/92- 07/31/94
USDA/ARS Mid-West Area Peoria, IL 61604 Title: The Proton-Sucrose Symport	D. Bush	91-37306-6001++	\$ 50,000	08/01/91- 07/31/93
Purdue Research Fdn. West Lafayette, IN 47907 Title: NaCl Regulation of Plasma Membrane and Tonoplast ATPase Gene Expression During Salt Adaptation	P. Hasegawa R. Bressan M. Narashimhan	92-37100-7738	\$ 120,000	09/01/92- 08/31/94
Purdue Research Foundation West Lafayette, IN 47907 Title: Compensatory Mechanisms of Hardwood Forest Communities in a Changing Climate	A. Gillespie	92-37101-7437	\$ 64,223	08/01/92- 07/31/94
Purdue Research Foundation West Lafayette, IN 47907 Title: Extracellular Matrix Proteins in Cell Wall/Membrane Adhesion	R. Bressan P. Hasegawa	92-37100-7628	\$ 120,000	09/01/92- 08/31/94
Purdue Research Foundation West Lafayette, IN 47907 Title: Plasma Membrane-Cell Wall Adhesion Proteins	N. Carpita L. Dunkle	92-37304-7804	\$ 50,000	09/15/92- 09/30/93
Kansas State University Manhattan, KS 66506 Title: Interaction of Photosystem I with its Electron Donor and Acceptor	P. Chitnis	92-37306-7661	\$ 120,000	09/01/92- 08/31/94

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NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
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ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Southern University & A&M College Baton Rouge, LA 70813 Title: Gas Exchanges and Growth of Urban Trees Under Stressed Environments	Y. Qi C. Blanche	92-37106-8085	\$ 10,880	09/15/92- 09/30/93
Massachusetts General Hospital Boston, MA 02114 Title: Molecular Mechanisms of Maize C4PPDK Gene Regulation	J. Sheen	91-37306-6352++	\$ 55,000	09/01/91- 08/31/93
Harvard University Cambridge, MA 02138 Title: Role of Calmodulin (CaM) and CaM-binding Proteins in Stomatal Responses to Stress	S. Assmann	92-37100-7537	\$ 190,000	08/01/92- 07/31/95
Harvard University Cambridge, MA 02138 Title: Control of cab Gene Expression in Maize Mesophyll and Bundle Sheath Cells	L. Bogorad	92-37306-7693	\$ 90,000	09/01/92- 08/31/94
USDA/ARS Beltsville Area Beltsville, MD 20705 Title: Potential Impact of CO ₂ and Temperature on Respiratory Carbon Loss in Plants	J. Bunce	92-37100-7575	\$ 190,000	09/15/92- 09/30/95
University of Maryland College Park, MD 20742 Title: Implications of Increasing UV-B Radiation on Loblolly Pine and Sweetgum	J. Sullivan A. Teramura	92-37100-7530	\$ 174,200	09/01/92- 08/31/94
University of Maryland College Park, MD 20742 Title: Foliar Flavonoid Changes in Soybeans Exposed to UV-B Radiation	A. Teramura W. Kenworthy	92-37100-7576	\$ 130,000	09/01/92- 08/31/94

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NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Global Change

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Maine Orono, ME 04469-5715 Title: Nitrogen Fixation in Actinorhizal Plants: Regulation of Oxygen	J. Tjepkema	92-37305-7758	\$ 60,000	09/01/92-08/31/94
University of Maine Orono, ME 04469-5715 Title: Equipment for Studying Climate Change Influences on Cold Tolerance of Trees	W. Livingston A. White	92-37106-8086	\$ 5,331	09/15/92-09/30/93
University of Maine Orono, ME 04469-5715 Title: Indicators of Forest Ecosystem Response to Experimental Soil Warming	I. Fernandez	92-37101-7978	\$ 174,137	09/15/92-09/30/94
University of Michigan Ann Arbor, MI 48109 Title: Inorganic Biochemistry of Photosynthetic Oxygen Evolution	C. Yocum	92-37306-7662	\$ 175,000	09/15/92-09/30/95
Michigan State University East Lansing, MI 48824 Title: Regulation of Gene Expression in Response to Cold Temperatures	M. Thomashow	92-37100-7531	\$ 160,000	09/01/92-08/31/95
Michigan State University East Lansing, MI 48824 Title: Charge Separation and Stabilization in Chloroplast Photosystem II	G. Babcock	92-37306-7694	\$ 50,000	09/01/92-08/31/93
University of Minnesota Minneapolis, MN 55415 Title: Mechanisms by which Heat Stress Disrupts Maize Endosperm Development	R. Jones	92-37100-7440	\$ 120,000	07/15/92-07/31/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
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ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Missouri Columbia, MO 65211 Title: Drought Tolerance Mechanisms in Black Walnut (<i>Juglans nigra</i> L.)	S. Pallardy	92-37100-7647	\$ 153,600	09/01/92- 08/31/95
University of Missouri Columbia, MO 65211 Title: Nitrogen and CO ₂ Effects on Leaf Growth - Photosynthesis Relationships in Tall Fescue	C. Nelson	92-37100-7629	\$ 180,000	09/01/92- 08/31/95
University of Missouri Columbia, MO 65211 Title: Research Collaboration Group in Plant Protein Phosphorylation	D. Randall	92-37105-7675	\$ 50,000	09/01/92- 08/31/93
Washington University, St. Louis, MO 63130 Title: Phenotypic Importance to Two Stressed Legumes of Proline Oxidation by Bacteroids	D. Kohl G. Shearer	92-37305-7721	\$ 80,000	09/01/92- 08/31/94
Agri. & Forestry Expt. Station Mississippi State University Mississippi State, MS 39762 Title: Molecular Studies of Heat Tolerance in <i>Agrostis palustris</i>	D. Luthe	92-37100-7671	\$ 100,000	09/15/92- 09/30/94
Montana State University Bozeman, MT 59717 Title: Redistribution of Water and Chemicals by Passive Transport Through Plant Roots	J. Wraith	92-37106-8087	\$ 50,000	09/15/92- 09/30/94
Duke University Durham, NC 27706 Title: Response of Western Montane Forest Ecosystems to Global Climate Change	W. Schlesinger	91-37101-6724++	\$ 127,000	09/01/91- 08/31/93

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NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
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ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Duke University Durham, NC 27706 Title: Response of Temperate and Tropical N ₂ -Fixing Trees to Global Environmental Change	R. Thomas D. Richter	92-37100-7535	\$ 172,300	08/01/92- 07/31/94
University of New Hampshire Durham, NH 03824 Title: Quantitation of UV-B Induced and P.A.R. Modified Effects on Leaf Anatomy and Cytology	W. Fagerberg	92-37106-8088	\$ 24,111	09/15/92- 09/30/94
Rutgers, The State University Piscataway, NJ 08855-1089 Title: The Effect of Heat Shock on Secretion in Barley Aleurone Layers	F. Belanger	92-37100-7536	\$ 180,000	08/01/92- 07/31/95
Rutgers, The State University Piscataway, NJ 08855-1089 Title: Oxidative Stress: The Role of Superoxide Dismutase and Ascorbate Peroxidase	B. Zilinskas	92-37100-7739	\$ 120,000	09/01/92- 08/31/94
Rutgers, The State University Piscataway, NJ 08855-1089 Title: A Chloroplast Envelope K Channel & Cation Pump: A System Regulating Photosynthesis	G. Berkowitz	92-37306-7818	\$ 120,000	09/01/92- 08/31/94
State University of New York, Albany Albany, NY 12201 Title: Pollen Development & the Relevance of Heat Shock Proteins	J. Mascarenhas	92-37304-7869	\$ 113,000	09/01/92- 08/31/94
Cornell University Ithaca, NY 14853 Title: Adaptation to Temporally-Varying Environments	M. Geber	90-37280-5460	\$ 130,000	09/01/90- 08/31/94

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ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Cornell University Ithaca, NY 14853 Title: Nonlinear Optical Studies of Energy and Electron Transfer Dynamics in Photosynthetic Systems	A. Albrecht	92-37306-7695	\$ 120,000	08/15/92- 08/31/94
Cornell University Ithaca, NY 14853 Title: Synthesis of Export Sugars in Leaves of Cucurbita Pepo	R. Turgeon	92-37306-7819	\$ 100,000	09/01/92- 08/31/94
University of Rochester Rochester, NY 14627-0140 Title: Studies of Excitation Transfer in Photosynthetic Antenna Structures	R. Knox	92-37306-7696	\$ 90,000	09/01/92- 08/31/94
Rensselaer Polytechnic Institute Troy, NY 12180-3590 Title: Studies of the Role of Molecular Chaperones in Oligomeric Protein Assembly	H. Roy	91-37306-6708	\$ 100,000	09/01/91- 08/31/94
Ohio State University Research Foundation Columbus, OH 43210 Title: Proline Biosynthetic Genes and Control of Osmotic Stress in Plants	D. Verma	92-37100-7648	\$ 180,000	09/01/92- 08/31/95
University of Dayton Dayton, OH 45469 Title: Regulation of Photosynthesis in Response to Light and CO ₂	J. Servaites	92-37306-7697	\$ 100,000	09/15/92- 09/30/94
Oklahoma State University Stillwater, OK 74078 Title: Molecular Basis of CAM Induction by Salt Stress	J. Cushman	92-37100-7761	\$ 170,000	09/15/92- 09/30/95

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Global Change

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Oregon State University Corvallis, OR 97331 Title: Growth and DNA-Damage Responses of Arabidopsis and Crop Plants to UV-B Light	J. Hays	92-37100-7725	\$ 180,000	09/01/92-08/31/95
Gordon Res. Conference Kingston, RI 02881 Title: Gordon Research Conference on Temperature Stress in Plants	P. Steponkus	92-37100-7762	\$ 5,600	09/01/92-03/31/93
University of Tennessee Knoxville, TN 37996-0140 Title: Physiological and Genetic Studies of Salt Tolerant Mutants in Ceratopteris	L. Hickok R. Auge	92-37100-7673	\$ 120,000	08/01/92-07/31/94
Texas A&M Research Foundation College Station, TX 77843 Title: Genes Induced by Plant Water Deficit	J. Mullet	91-37100-5865++	\$ 60,000	09/01/91-08/31/93
Texas A&M Research Foundation College Station, TX 77843 Title: Genetic Dissection of Abscisic Acid Biosynthesis in Maize Caryopses	J. Smith	92-37304-8056	\$ 95,000	09/01/92-08/31/94
Rice University Houston, TX 77252-2692 Title: Rice Field Management and Mitigation of Methane Emissions	R. Sass	91-37101-6814++	\$ 100,000	09/15/91-09/30/93
Texas Tech University Lubbock, TX 79409-1035 Title: Genetic Relationships Between Heat Shock Proteins and Thermotolerance in Wheat	H. Nguyen K. Morrow	92-37100-7903	\$ 160,000	09/01/92-08/31/95

++ Continuation Award

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Global Change

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Southwest Texas State University San Marcos, TX 78666	P. Barnes	92-37100-7763	\$ 170,000	09/01/92- 08/31/95
Title: Photomorphogenic Effects of UV-B Radiation on the Growth and Pigmentation of Higher Plants				
Utah State University Logan, UT 84322	M. Caldwell	92-37100-7630	\$ 250,000	09/15/92- 09/30/95
Title: Plant Action Spectra to Link Stratospheric Ozone Reduction with Biosphere Responses				
University of Utah Salt Lake City, UT 84112	J. Sperry J. Ehleringer	92-37100-7532	\$ 180,000	08/01/92- 07/31/95
Title: Hydraulic Limitation of Gas Exchange and Drought Tolerance in Trees				
University of Utah Salt Lake City, UT 84112	J. Ehleringer	92-37101-7975	\$ 150,000	09/15/92- 09/30/94
Title: Forest CO ₂ Cycling and Global CO ₂				
Virginia Polytechnic Institute and State University Blacksburg, VA 24061	R. Alscher B. Chevone J. Hess	92-37100-7534	\$ 5,700	08/01/92- 10/31/92
Title: Gaseous Pollutants and Plant Metabolism				
University of Vermont Burlington, VT 05405	D. DeHayes J. Cumming G. Hawley	92-37100-7740	\$ 130,000	09/01/92- 08/31/94
Title: Role of Pollution - Induced Calcium Deficiencies in Freezing Injury of Red Spruce				
University of Washington Seattle, WA 98195	R. Stettler H. McNabb P. Heilman	92-37105-7764	\$ 100,000	09/01/92- 08/31/93
Title: Molecular Genetics of <i>Populus</i> : Collaborative Network				

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Global Change

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Washington Seattle, WA 98195 Title: Global Competitive Trade in Forest Products and Environmental Impacts Assessment	J. Perez-Garcia	92-37400-8303	\$ 64,000	09/15/92-09/30/93
University of Washington Seattle, WA 98195 Title: Genetics and Regulation of Nitrogen Fixation in a Methanogenic Archaebacterium	J. Leigh	92-37305-7965	\$ 100,000	09/01/92-08/31/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: Molecular Genetic Analysis of Vernalization in Arabidopsis	R. Amasino	92-37100-7533	\$ 170,000	08/01/92-07/31/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: Mutations Affecting Photosynthetic Cytochrome Synthesis	T. Donohue	90-37262-5588	\$ 120,000	09/01/90-08/31/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: Studies on the Redox Regulation of Chloroplast Coupling Factor 1 (CF1)	B. Selman	92-37306-7698	\$ 120,000	09/01/92-08/31/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: Structure-Function Relationships in Photosynthetic Electron Transport	J. Markley	92-37306-7699	\$ 110,000	08/15/92-08/31/94

Total : \$ 9,400,182

CROSS-DIVISIONAL OR CROSS-PROGRAMATIC TOPIC

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ANIMAL HEALTH RELATED RESEARCH

Awards listed in this section represent projects funded across the Animal Systems Programs. Such projects are focused within the guidelines of individual programs but deal with biotic and abiotic agents that are relevant to sustaining animal health and well-being and preventing animal disease.

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Health Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Auburn University Auburn University, AL 36849 Title: Immediate Early Genes of Channel Catfish Virus	K. Nusbaum R. Bird	92-37204-7998	\$ 54,000	09/15/92- 09/30/94
Agricultural Expt. Station University of Arizona Tucson, AZ 85721 Title: The Molecular Pathogenesis of <i>Serpulina hyodysenteriae</i> Hemolysin	L. Joens	92-37204-8228	\$ 95,000	09/15/92- 09/30/94
University of California Davis, CA 95616-8671 Title: Acetone/Isopropanol Cycle in Ruminants	M. Bruss	92-37204-8107	\$ 95,000	09/15/92- 09/30/94
University of California Davis, CA 95616-8671 Title: The Pathogenesis of Bluetongue Virus Infection of Bovine Blood Cells	N. MacLachlan B. Osburn J. Stott	92-37204-7999	\$ 200,000	09/15/92- 09/30/95
Beckman Research Institute of the City of Hope Duarte, CA 91010 Title: Immunogenetic Elements in the Resistance of Chickens to Infectious Diseases	M. Miller W. Briles	92-37204-8244	\$ 150,000	09/15/92- 09/30/94
University of California, San Diego La Jolla, CA 92093 Title: Development of the Bovine IgG2 Response	L. Corbeil	92-37204-8108	\$ 185,000	09/15/92- 09/30/94
Colorado State University Ft. Collins, CO 80523 Title: Genetic Studies of Insect Vectors of Bluetongue Virus	W. Black M. Robertson W. Tabachnick	92-37204-7960	\$ 100,000	09/01/92- 08/31/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Health Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Delaware Newark, DE 19716 Title: Functional Analysis of the Marek's Disease Virus Genome	R. Morgan	92-37204-8039	\$ 150,000	09/15/92- 09/30/95
University of Delaware Newark, DE 19716 Title: Use of an Alphaherpesvirus to Study Cell-Mediated Immunity in the Chicken	C. Keeler	92-37204-8178	\$ 100,000	09/15/92- 09/30/94
University of Florida Gainesville, FL 32611 Title: Chicken T Cell Receptor Beta Genes and Disease Resistance	W. McCormack	92-37204-7835	\$ 200,000	09/01/92- 08/31/95
University of Florida Gainesville, FL 32611 Title: Development of a Swinepox-Pseudorabies Recombinant Virus for Oral Vaccination	E. Gibbs R. Moyer	92-37204-8289	\$ 120,000	09/15/92- 09/30/94
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Molecular Approaches to the Prevention of Ichthyophthirius Infection	H. Dickerson T. Clark	92-37204-7838	\$ 300,000	09/01/92- 08/31/95
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Catfish Nonspecific Cytotoxic Cells: Receptors and Signalling	D. Evans L. Jaso-Friedmann	92-37204-7924	\$ 270,000	09/15/92- 09/30/95
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Antimicrobial Proteins and Peptides in Avian Phagocytic Leukocytes	B. Harmon J. Glisson	92-37204-8109	\$ 85,000	09/15/92- 09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Health Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Iowa State University of Science and Technology Ames, IA 50011 Title: Genetic Regulation in <i>Mycoplasma gallisepticum</i> and its Role in Virulence	F. Minion D. Trampel	92-37204-7836	\$ 230,000	09/15/92- 09/30/95
Iowa State University of Science and Technology Ames, IA 50011 Title: <i>Pinus Ponderosa</i> and Abortion in Cattle: Physiology and Chemistry	S. Ford J. Rosazza R. Short	92-37203-7918	\$ 339,564	09/01/92- 08/31/95
University of Iowa Iowa City, IA 52242 Title: Organization of the Cgamma-locus and its Ontogenetic Expression	J. Butler	92-37206-7905	\$ 150,000	09/15/92- 09/30/94
University of Iowa Iowa City, IA 52242 Title: Genetics of Fimbrial Expression in <i>Salmonella</i>	S. Clegg	92-37204-7837	\$ 170,000	09/15/92- 09/30/94
USDA/ARS Mid-West Area Peoria, IL 61604 Title: Mapping Marek's Disease Virus Genes by Insertional Mutagenesis	R. Silva H. Kung R. Witter	92-37204-8001	\$ 150,000	09/15/92- 09/30/94
University of Illinois Urbana, IL 61801 Title: Endocrine Regulation of the Immune System	K. Kelley	92-37206-7777	\$ 250,000	09/01/92- 08/31/95
University of Illinois Urbana, IL 61801 Title: Molecular and Cellular Immunology of Porcine Memory T Cells	F. Zuckermann	92-37204-7923	\$ 200,000	09/15/92- 09/30/95

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Health Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Illinois Urbana, IL 61801 Title: Host Mechanisms of Resistance and Susceptibility to Bovine Leukemia Virus Infection	H. Lewin L. Schook	92-37204-7956	\$ 100,000	09/01/92- 08/31/94
University of Kentucky Research Foundation Lexington, KY 40506-0057 Title: Function of the Phosphorylation of Influenza Virus Nucleoprotein in Host Specificity	K. Franklin	92-37204-7958	\$ 75,500	09/15/92- 09/30/94
University of Kentucky Research Foundation Lexington, KY 40506-0057 Title: Use of PCR to Study the M Protein Genes of the Equine Group C Streptococci	J. Timoney	92-37204-8113	\$ 101,000	09/15/92- 09/30/94
Louisiana State University Medical Center Shreveport, LA 71130 Title: Molecular Studies for Development of an Equine Herpesvirus Vaccine	D. O'Callaghan S. Jennings	92-37204-8040	\$ 200,000	09/15/92- 09/30/95
Tufts University Boston, MA 02111 Title: Cryptosporidiosis in Calves: Cellular Mechanisms of Disease	S. Tzipori	92-37204-7771	\$ 180,000	09/01/92- 08/31/94
Uniformed Svc. University of the Health Sciences Bethesda, MD 20814-4799 Title: Pathogenesis of Calf Colibacillosis: Role of Cytotoxic Necrotizing Factor Type 2	A. O'Brien	92-37204-7770	\$ 140,000	09/01/92- 08/31/95
Advanced Bioscience Labs, Inc. NCI - Frederick Cancer Research Facilities Frederick, MD 21701-1013 Title: Capsid Targeted Viral Inactivation as an Antiviral Strategy	M. Federspiel S. Hughes	92-37204-8041	\$ 100,000	09/15/92- 09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Health Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Michigan State University East Lansing, MI 48824 Title: Structural and Functional Domains of <i>E. coli</i> Enterotoxin	M. Bagdasarian	92-37204-7839	\$ 230,000	09/15/92- 09/30/95
Michigan State University East Lansing, MI 48824 Title: Regulatory Regions of Marek's Disease Virus: Transactivation	P. Coussens	92-37204-8042	\$ 220,000	09/15/92- 09/30/94
University of Minnesota Minneapolis, MN 55415 Title: The Agent of Proliferative Enteritis: Molecular Identification	C. Gebhart G. Ward	92-37204-8110	\$ 195,000	09/15/92- 09/30/95
University of Missouri Columbia, MO 65211 Title: Molecular Mechanisms that Regulate Proliferation of Avian Lymphoid Cells	M. Hannink	92-37206-7845	\$ 180,882	09/01/92- 08/31/95
Washington University St. Louis, MO 63130 Title: Analysis of <i>Salmonella enteritidis</i> Virulence in Chickens	R. Curtiss	92-37204-8000	\$ 220,000	09/01/92- 08/31/94
University of Southern Mississippi Hattiesburg, MS 39406 Title: Phenotypic Multi-drug Resistance in the Fungus <i>Mucor</i>	G. Shearer	92-37208-8186	\$ 50,000	09/15/92- 09/30/94
University of Mississippi Medical Center Jackson, MS 39216 Title: Biological and Immunological Aspects of Channel Catfish Virus	V. Chinchar N. Miller	92-37208-8187	\$ 50,000	09/15/92- 09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Health Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agri. & Forestry Expt. Station Mississippi State University Mississippi State, MS 39762	L. Hanson J. Boyle S. Jack	92-37204-7925	\$ 100,000	09/15/92- 09/30/95
Title: Infectious Cycle and Pathogenesis of Channel Catfish Virus (CCV) and TK-CCV				
Montana State University Bozeman, MT 59717	D. Burgess B. Granger	92-37204-7772	\$ 190,000	09/15/92- 09/30/95
Title: Identification, Cloning and Immunogenicity of Adhesions of <i>Tritrichomonas foetus</i>				
Montana State University Bozeman, MT 59717	S. Knapp M. Abrahamsen	92-37208-8188	\$ 49,439	09/15/92- 09/30/94
Title: Seasonal Transmission of <i>Fasciola hepatica</i> : Implications for Biological Control				
Montana State University Bozeman, MT 59717	M. White M. Abrahamsen C. Speer	92-37204-8179	\$ 160,000	09/15/92- 09/30/94
Title: Molecular Identification of Targets for Coccidiosis Treatments				
Agricultural Expt. Station North Dakota State University Fargo, ND 58105	E. Berry	92-37208-8123	\$ 35,230	09/15/92- 09/30/93
Title: Equipment Enhancement of Molecular Virology Research				
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704	R. Donis	92-37204-7959	\$ 200,000	09/01/92- 08/31/95
Title: Site-Directed Mutagenesis of the p125 Polypeptide of Bovine Viral Diarrhea Virus				
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704	C. Jones	92-37204-7955	\$ 100,000	09/15/92- 09/30/94
Title: Regulation of Bovine Herpes Virus 1 Transcription During Latent Infection				

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Health Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Cornell University Ithaca, NY 14853	N. Norcross K. Kenny F. Bastida-Corcuera	92-37204-7769	\$ 104,000	09/01/92- 08/31/94
	Title: Virulence of Mutant Strains of <i>Staphylococcus aureus</i> for the Bovine Mammary Gland			
Cornell University Ithaca, NY 14853	Y. Grohn	92-37204-7957	\$ 150,000	09/01/92- 08/31/94
	Title: The Interdependency of Disease and Milk Yield in Holstein Dairy Cows			
Cornell University Ithaca, NY 14853	H. Mohammed C. Parrish E. Atwill	92-37204-8043	\$ 75,000	09/15/92- 09/30/94
	Title: The Epidemiology of Equine Monocytic Ehrlichiosis			
Cornell University Ithaca, NY 14853	K. Schat	92-37204-8044	\$ 180,000	09/15/92- 09/30/94
	Title: Marek's Disease Virus Genes Associated with Cell-mediated Immunity			
Ohio State University Research Foundation Columbus, OH 43210-1063	K. Brock	92-37204-7961	\$ 150,000	09/15/92- 09/30/95
	Title: Molecular Analysis of Bovine Viral Diarrhea Virus to Identify Biotypic Determinants			
Oklahoma State University Stillwater, OK 74078	G. Murphy A. Confer	92-37204-7773	\$ 230,000	09/15/92- 09/30/95
	Title: Molecular Analysis of <i>Pasteurella haemolytica</i> Major Outer Membrane Proteins			
Oregon State University Corvallis, OR 97331	J. Leong	92-37204-7997	\$ 106,000	09/15/92- 09/30/94
	Title: Cell Receptors in Pathogenesis of Infectious Hematopoietic Necrosis Virus			

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Health Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Pennsylvania Philadelphia, PA 19104 Title: Fimbriae-Mediated Adhesion of Enterotoxigenic Escherichia coli	D. Schifferli	92-37204-7901	\$ 270,000	09/15/92- 09/30/95
University of Pennsylvania Philadelphia, PA 19104 Title: Interactions of Listeria with Host Cells	J. Sanger	92-37204-7926	\$ 85,000	09/01/92- 08/31/94
University of Rhode Island Kingston, RI 02881 Title: An In Vitro Study on the Interaction of Salmonid Phagocytes and Renibacterium salmoninarum	J. Bodammer	92-37208-8124	\$ 31,296	09/15/92- 09/30/94
Medical University of South Carolina Charleston, SC 29425 Title: Genetic Basis of the Antibody Response of the Duck	G. Warr	92-37208-8191	\$ 50,000	09/15/92- 09/30/94
Clemson University Clemson, SC 29634-5326 Title: Immune Responses of Channel Catfish as Selective Biological Markers of Pesticide Induced Stress	S. Hayasaka	92-37208-8193	\$ 45,500	09/15/92- 09/30/94
South Dakota State University Brookings, SD 57007 Title: Analysis of Porcine Intestinal Receptors to Which Escherichia Coli K88 Pili Bind	D. Francis B. Bosworth A. Erickson T. Casey	92-37204-7774	\$ 160,000	09/15/92- 09/30/95
South Dakota State University Brookings, SD 57007 Title: Pathogenetic Mechanism of Swine Infertility and Respiratory Syndrome (SIRS) Virus	D. Benfield J. Collins D. Hurley	92-37204-8045	\$ 150,000	09/15/92- 09/30/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Health Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
South Dakota State University Brookings, SD 57007 Title: Interaction of Superantigens with Lymphocytes from Cattle and Swine	D. Hurley	92-37208-8192	\$ 49,943	09/15/92-09/30/94
Agricultural Expt. Station University of Tennessee Knoxville, TN 37901-1071 Title: The Bovine CD14 Receptor: A Link in Endotoxin-Mediated Macrophage Activation	P. Bochsler	92-37204-7775	\$ 150,000	09/15/92-09/30/94
Agricultural Expt. Station University of Tennessee Knoxville, TN 37901-1071 Title: Identification of C3 Binding Components that Facilitate Invasion by B. bigemina	S. Kania L. Potgieter	92-37204-8112	\$ 130,000	09/15/92-09/30/94
Agricultural Expt. Station University of Tennessee Knoxville, TN 37901-1071 Title: Molecular Basis of Endothelial Cell Sensitivity to Lipopolysaccharide	M. Breider R. Carroll	92-37204-8111	\$ 95,000	09/15/92-09/30/94
Agricultural Expt. Station University of Tennessee Knoxville, TN 37901-1071 Title: Mechanism(s) of Coronavirus RNA Replication and Packaging	D. Brian	92-37204-8046	\$ 200,000	09/15/92-09/30/95
Texas A&M Research Foundation College Station, TX 77843 Title: Molecular Basis of Exotoxin Activation and Specificity	D. Struck R. Young	92-37204-7954	\$ 250,000	09/01/92-08/31/95
Texas A&M Research Foundation College Station, TX 77843 Title: Regulation of Bovine T Lymphocyte Responses by Mononuclear Phagocytes	R. Smith L. Adams	92-37204-7904	\$ 175,000	09/01/92-08/31/94

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Health Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Texas A&M Research Foundation College Station, TX 77843	T. Ficht L. Adams B. Sowa	92-37204-8002	\$ 200,000	09/01/92- 08/31/95
Title: Survival and Immunogenicity of Avirulent Mutants of <i>Brucella abortus</i>				
University of Texas Southwestern Medical Center at Dallas Dallas, TX 75235-9073	R. Munford	92-37204-8268	\$ 220,000	09/15/92- 09/30/95
Title: Endotoxin-Resistant Transgenic Mice				
University of Texas Southwestern Medical Center at Dallas Dallas, TX 75235-9073	Y. Kupersztoch J. Kettman	92-37204-8269	\$ 300,000	09/15/92- 09/30/94
Title: Enhanced Adjuvanticity for Local and Systemic Immunization by Fused Toxin Genes				
Washington State University Pullman, WA 99164-5045	G. Palmer T. McElwain	92-37204-8180	\$ 195,000	09/15/92- 09/30/95
Title: Significance of Conserved Peptide Motifs in Babesial Apical Complex Proteins				
Board of Regents University of Wisconsin Madison, WI 53706	C. Czuprynski	92-37204-7927	\$ 160,000	09/15/92- 09/30/95
Title: Binding of <i>Pasteurella haemolytica</i> Leukotoxin to Bovine Neutrophils				
Board of Regents University of Wisconsin Madison, WI 53706	L. Schuler	92-37206-7933	\$ 205,265	09/15/92- 09/30/95
Title: Role of the Prolactin/Growth Hormone Gene Family in Bovine Fetal Immune Development				
Board of Regents University of Wisconsin Madison, WI 53706	G. Letchworth	92-37204-7900	\$ 270,000	09/15/92- 09/30/95
Title: Cloning and Sequencing New Antigens for a Bovine Herpesvirus Mucosal Vaccine				

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
 Animal Health Related Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Board of Regents University of Wisconsin Madison, WI 53706 Title: Studies on the Origin and Etiology of Transmissible Mink Encephalopathy	J. Aiken	92-37204-8115	\$ 155,020	09/15/92- 09/30/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: T Lymphocyte Recognition of Brucella Proteins	G. Splitter	92-37204-8114	\$ 200,000	09/15/92- 09/30/94

Total : \$ 11,212,639

CROSS-DIVISIONAL OR CROSS-PROGRAMATIC TOPIC

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ANIMAL GENETIC RELATED RESEARCH
(Animal Genome)

Awards listed in this section represent projects funded across the Animal Systems Programs. Such projects are focused within the guidelines of individual programs but aim to increase our understanding of the structure, organization, function, regulation, and expression of genes in agriculturally important animals.

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671 Title: GH Regulation of Growth Plate Cell Proliferation and Tissue IGF-I Gene Expression	A. Oberbauer J. Murray	92-37206-7915	\$ 181,842	09/15/92- 09/30/95
University of California Davis, CA 95616-8671 Title: Genetic and Physiological Bases of Hybrid Vigor in Oysters	D. Hedgecock	92-37206-8003	\$ 290,000	09/15/92- 09/30/95
University of California Davis, CA 95616-8671 Title: Genetic Mapping of a Major Gene Influencing Animal Growth	J. Medrano	92-37205-7840	\$ 96,513	09/15/92- 09/30/94
Beckman Research Institute of the City of Hope Duarte, CA 91010 Title: Immunogenetic Elements in the Resistance of Chickens to Infectious Diseases	M. Miller W. Briles	92-37204-8244	\$ 150,000	09/15/92- 09/30/94
University of California, San Diego La Jolla, CA 92093 Title: Development of the Bovine IgG2 Response	L. Corbeil	92-37204-8108	\$ 185,000	09/15/92- 09/30/94
University of California San Francisco, CA 94143-0962 Title: Transforming Growth Factor-B Gene Expression and Action in the Bovine Ovary	M. Skinner	92-37206-8116	\$ 240,000	09/15/92- 09/30/94
University of Florida Gainesville, FL 32611 Title: Chicken T Cell Receptor Beta Genes and Disease Resistance	W. McCormack	92-37204-7835	\$ 200,000	09/01/92- 08/31/95

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Florida Gainesville, FL 32611 Title: Hormonal Regulation of an Oviductal Secretory Protein	W. Buhi F. Simmen	92-37203-7996	\$ 252,113	09/15/92- 09/30/95
University of Georgia Research Foundation, Inc. Athens, GA 30602 Title: Bovine Genome Mapping: Selected Production Traits	R. McGraw	92-37205-8047	\$ 100,000	09/15/92- 09/30/94
University of Iowa Iowa City, IA 52242 Title: Organization of the Cgamma-locus and its Ontogenetic Expression	J. Butler	92-37206-7905	\$ 150,000	09/15/92- 09/30/94
University of Illinois Urbana, IL 61801 Title: Towards a 20 cM Map of the Bovine Genome	H. Lewin R. Fernando	91-37205-6335++	\$ 102,932	09/01/91- 08/31/93
University of Illinois Urbana, IL 61801 Title: Molecular and Cellular Immunology of Porcine Memory T Cells	F. Zuckermann	92-37204-7923	\$ 200,000	09/15/92- 09/30/95
University of Illinois Urbana, IL 61801 Title: Host Mechanisms of Resistance and Susceptibility to Bovine Leukemia Virus Infection	H. Lewin L. Schook	92-37204-7956	\$ 100,000	09/01/92- 08/31/94
Kansas State University Manhattan, KS 66506 Title: Cytogenetic Approaches to Food Animal Gene Mapping	D. Troyer D. Skinner	92-37205-7841	\$ 83,495	09/15/92- 09/30/94

++ Continuation Award

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Advanced Bioscience Labs, Inc. NCI - Frederick Cancer Research Facilities Frederick, MD 21701-1013 Title: Capsid Targeted Viral Inactivation as an Antiviral Strategy	M. Federspiel S. Hughes	92-37204-8041	\$ 100,000	09/15/92- 09/30/94
University of Minnesota Minneapolis, MN 55415 Title: Molecular Genetics of Fish Growth and Development	P. Hackett	92-37205-7842	\$ 250,000	09/15/92- 09/30/95
University of Missouri Columbia, MO 65211 Title: Transgenic Expression in Bovine Blastocysts Derived by In Vitro Procedures	R. Roberts R. Prather	92-37206-7846	\$ 200,000	09/01/92- 08/31/95
Monsanto Agricultural Company St. Louis, MO 63198 Title: Effect of Growth Hormone on Functions of the Corpus Luteum in Cattle	M. Lucy	92-37203-8243	\$ 84,000	09/15/92- 09/30/94
Rutgers, The State University New Brunswick, NJ 08903 Title: Relationship of TGF/EGF, Gonadotropin Receptors(R) and EGF-R to Follicle Growth	A. Johnson	92-37203-7767	\$ 192,500	09/01/92- 08/31/95
Cornell University Ithaca, NY 14853 Title: Ribosomal Gene Amplification, Recruitment, and Variation in Avian Development	S. Bloom M. Delany	92-37206-7778	\$ 160,000	09/15/92- 09/30/95
Cornell University Ithaca, NY 14853 Title: Tissue-Specific Expression of the Lipoprotein Lipase Gene	A. Bensadoun	92-37205-7962	\$ 220,000	09/15/92- 09/30/95

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Cornell University Ithaca, NY 14853 Title: Marek's Disease Virus Genes Associated with Cell-mediated Immunity	K. Schat	92-37204-8044	\$ 180,000	09/15/92-09/30/94
Syracuse University Syracuse, NY 13210 Title: Control of Myogenin Gene Expression by IGF-I	J. Florini	92-37206-7780	\$ 225,000	09/01/92-08/31/95
Texas A&M Research Foundation College Station, TX 77843 Title: Constructing a Microsatellite/Cosmid Map of the Bovine Genome	J. Womack	92-37205-8048	\$ 260,000	09/01/92-08/31/95
University of Texas Southwestern Medical Center at Dallas Dallas, TX 75235-9073 Title: Endotoxin-Resistant Transgenic Mice	R. Munford	92-37204-8268	\$ 220,000	09/15/92-09/30/95
Baylor College of Medicine Houston, TX 77030 Title: Identification of DNA Sequences Required to Target Proteins to the Mammary Gland	J. Rosen	92-37205-8263	\$ 100,000	09/15/92-09/30/93
Utah State University Logan, UT 84322 Title: Isolation of a Genetic Marker that Segregates with the Spider Lamb Syndrome Gene	N. Muggli-Cockett T. Bunch	92-37205-7931	\$ 163,500	09/15/92-09/30/95
Virginia Polytechnic Institute & State University Blacksburg, VA 24061-0429 Title: Role of Pit-1/GHF-1 in the Regulation of Turkey Prolactin Gene Expression	E. Wong	92-37205-7928	\$ 150,000	09/01/92-08/31/95

NATIONAL RESEARCH INITIATIVE COMPETITIVE GRANTS PROGRAM
Animal Genome

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Virginia Polytechnic Institute and State University Blacksburg, VA 24061 Title: Method to Include Genetic Marker Data in Genetic Evaluation of Livestock	I. Hoeschele	92-37205-8049	\$ 36,047	09/15/92-09/30/94
Board of Regents University of Wisconsin Madison, WI 53706 Title: Differences of Alpha-lactalbumin Gene Expression in Dairy Cattle	R. Bremel	92-37205-7929	\$ 180,000	09/15/92-09/30/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: Candidate Gene Contribution to Variation in Bovine Ovulation Rate	B. Kirkpatrick	92-37205-7930	\$ 168,500	09/15/92-09/30/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: T Lymphocyte Recognition of Brucella Proteins	G. Splitter	92-37204-8114	\$ 200,000	09/15/92-09/30/94
West Virginia Univ. Res. Corp. West Virginia University Morgantown, WV 26506 Title: Post-Meiotic Gene Expression During Spermatogenesis: Regulation and Function	P. Challoner S. Moss	92-37205-8050	\$ 240,000	09/01/92-08/31/95

Total : \$ 5,661,442

**BIOTECHNOLOGY RISK ASSESSMENT RESEARCH GRANTS
PROGRAM**

The authority for the Program is contained in section 1668 of the Public Law No. 101-624 (the Food, Agriculture, Conservation, and Trade Act of 1990, 7 U.S.C. 5921). This program supports biotechnology risk assessment research to help address concerns about the effects of introducing certain biotechnology products into the environment and to help regulators develop policies concerning the introduction of such products. Proposals may be submitted by any public or private research educational institution or organization.

Biotechnology Risk Assessment Research Grants Program
Biotechnology Risk Assessment

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Auburn University Auburn University, AL 36849 Title: Predator Avoidance, Spawning and Foraging Ability of Transgenic Catfish	R. Dunham	92-39210-8267**	\$ 217,391	09/15/92-09/30/95
University of Illinois Urbana, IL 61801 Title: Assessing Horizontal Gene Transfer from Rhizosphere Microorganisms to a GEM	S. Farrand	92-33120-8231**	\$ 220,000	09/15/92-09/30/95
USDA, ARS, Beltsville Beltsville, MD 20705 Title: Stability of Disabled Viroid Sequences in Transgenic Plants: Generation of Wild-Type Viroids Via Sequence Reversion &	R. Owens R. Hammond T. Diener	92-39210-8260	\$ 56,200	09/15/92-09/30/94
Michigan State University East Lansing, MI 48824 Title: Rhizopine Synthesis and Catabolism Genes for the Creation of "Biased Rhizospheres"	F. de Bruijn	92-39210-8224**	\$ 225,000	09/15/92-09/30/95
Washington University St. Louis, MO 63130 Title: Spread of Transgenic Weeds with Resistance to Herbicides	J. Bergelson	92-33120-8232**	\$ 209,924	09/15/92-09/30/95
Cornell University Ithaca, NY 14853 Title: Risk Assessment of Virus Spread Using Transgenic Plants Containing Viral Coat Protein Genes	D. Gonsalves	92-39210-8261**	\$ 98,196	09/15/92-09/30/94
Clemson University Clemson, SC 29634-5326 Title: Genetic Risk Assessment of Tobacco Budworm Resistance to Transgenic Bt-Toxin	D. Heckel	92-33120-8233**	\$ 230,000	09/15/92-09/30/95

** Split Funded Award

Biotechnology Risk Assessment Research Grants Program
Biotechnology Risk Assessment

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Board of Regents University of Wisconsin Madison, WI 53706 Title: The Impact of Patchiness and Life Strategy on Spread of Phyllosphere Bacteria	S. Hirano	92-39210-8225**	\$ 148,289	09/15/92- 09/30/94
Total : \$ 1,405,000				

** Split Funded Award

SPECIAL RESEARCH GRANTS PROGRAM

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The objective of this grant program is to carry out research to facilitate or expand promising breakthroughs in areas of food and agricultural sciences of importance to the Nation.

A brief description of the research areas in the Special Research Grants Program follows with a listing of research grants awarded in FY 1992.

This program is administered under the authority of Section 2(c) (1) of P.L. 89-106, as amended. Eligible institutions include land-grant colleges and universities, State agricultural experiment stations, and all colleges and universities, other research institutions and organizations, Federal agencies, private organizations or corporations, and individuals having a demonstrable capacity in food and agricultural research.

AQUACULTURE RESEARCH

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The purpose of the program is to enhance the knowledge and technology base necessary for the continued growth of the domestic aquaculture industry as a form of production agriculture. Emphasis is placed on research leading to improved production efficiency and increased competitiveness of private sector aquaculture. Studies on commercially important (or potentially important) species of fish can be addressed with a focus on disease and parasite control, and integrated aquatic animal health management.

Special Research Grants Program
Aquaculture Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Auburn University Auburn University, AL 36849 Title: Feed Borne Toxins from Fusarium moniliforme in Catfish Culture	R. Lovell B. Kemppainen	92-34123-7527	\$ 50,160	09/01/92- 08/31/94
University of Maryland College Park, MD 20742 Title: Genetic Characterization and Detection of Aquareoviruses	S. Samal F. Hetrick	92-34123-7455	\$ 66,892	09/01/92- 08/31/94
Oregon State University Corvallis, OR 97331 Title: Purification and Detection of the Virus Causing EIBD	J. Rohovec	92-34123-7666	\$ 66,965	09/01/92- 08/31/94
Oregon State University Corvallis, OR 97331 Title: Development of Enteric-Protected Vaccines for Aquaculture	S. Kaattari J. Christiansen	92-34123-7665	\$ 79,990	09/01/92- 08/31/94
Clemson University Clemson, SC 29634-5326 Title: Immune Function Indicators of Stress in Channel Catfish	J. Tomasso A. Bodine	92-34123-7667	\$ 35,138	09/01/92- 08/31/94

Total : \$ 299,145

SPECIAL RESEARCH GRANTS PROGRAM WATER QUALITY

As part of the President's Initiative to enhance Ground Water, the Cooperative State Research Service Water Quality Special Research Grants program seeks to develop new research to improve and expand knowledge about the relationships between agricultural practices and water quality. The goals of this program are to develop basic principles and to understand the processes underlying soil and/or water quality degradation originating from agricultural practices that use certain pesticides, fertilizers, and wastes. The capability to accurately and economically sample, interpret and predict occurrence of residual contaminants of soils and of water in the vadose and ground water zones are to be developed for both croplands and farmsteads. Also, results are to be transferable to different soil and cropping areas and size scales, and contribute to a better understanding of sociological, economic, and policy implications of water contamination or its prevention. Also, included in this program are studies on soil and plant testing methods, and adoption of improved practices to reduce nitrate that leach into water supplies. Special focus is given on evaluation and improvement of current tests of nitrogen availability to crops, development of new tests and farm-scale recommendations for nitrogen management.

Special Research Grants Program
Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Auburn University Auburn University, AL 36849 Title: Subsurf Transport and Mixing of Dense Leachates Near the Groundwater Table	J. Dane O. Guven	92-34214-7349	\$ 120,000	09/15/92- 09/30/94
Auburn University Auburn University, AL 36849 Title: Technology to Prevent Nitrate Contamination of Groundwater Under Grain Crops	C. Wood D. Reeves D. Delaney	92-34214-8074**	\$ 32,382	09/15/92- 09/30/93
Agricultural Expt. Station University of Arkansas Fayetteville, AR 72701 Title: Assessing Midseason, Nitrogen Requirements of Rice Using Canopy Image Analysis	W. Casady T. Costello	92-34214-8075**	\$ 32,400	09/15/92- 09/30/93
University of Arizona Tucson, AZ 85721 Title: Coupled Biotransformation and Transport of Nitrogen and Organic Compounds in Soil	T. Thompson R. Miller M. Brusseau	92-34214-7433	\$ 119,988	07/15/92- 07/31/95
University of Arizona Tucson, AZ 85721 Title: Development of Best Management Practices for Nitrogen and Water Use in Irrigated Broccoli and Cauliflower Production	T. Doerge T. Thompson	92-34214-8153**	\$ 32,393	09/15/92- 09/30/93
California State Bakersfield Foundation Bakersfield, CA 93311-1099 Title: Interactions of Anthropogenic Nitrogen Compounds with Soil Organic Matter	M. Mikita E. Weber	92-34214-7352	\$ 200,000	07/15/92- 07/31/94
University of California Davis, CA 95616-8671 Title: Application of Industrial X-ray Tomography to Transport of Organic Solvents and Pesticides in Soils	J. Hopmans	92-34214-7351	\$ 135,000	07/01/92- 06/30/95

** Split Funded Award

Special Research Grants Program
Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671 Title: Soil Desorption Kinetics of Pesticides in Response to Solution Properties	J. Biggar F. Spurlock	92-34214-7350	\$ 119,790	07/01/92- 06/30/94
University of California Davis, CA 95616-8671 Title: Fertilizer Management and Plant Nitrogen Testing in Deciduous Orchards Crops	P. Brown	92-34214-8155**	\$ 30,732	09/15/92- 09/30/93
University of California Davis, CA 95616-8671 Title: Economic Cost-Benefit Analysis and Technical Education for Adoption of Nitrogen Testing Programs in Large-Scale Vegetable..	L. Jackson K. Tanji	92-34214-8154**	\$ 32,329	09/15/92- 09/30/93
USDA/ARS Northern Plains Area Fort Collins, CO 80526 Title: Protecting Water Quality by Scouting Weed Populations for Efficient Management	E. Schweizer L. Wiles	92-34214-7353	\$ 185,000	09/01/92- 08/31/95
Colorado State University Ft. Collins, CO 80523 Title: Reducing Nitrate Leaching Through In-Season Soil Nitrate and Leaf Chlorophyll Testing	P. Soltanpour	92-34214-8156**	\$ 32,151	09/15/92- 09/30/93
University of Florida Gainesville, FL 32611 Title: Modeling the Fate and Transport of Nitrogen Fertilizer, Carbaryl, and Bromide Applied to Bahiagrass	P. Nkedi-Kizza L. Ou J. Rechcigl	92-34214-7382	\$ 130,000	09/01/92- 08/31/94
USDA/ARS South Atlantic Area Athens, GA 30613 Title: Non-Destructive Identification and Sampling of Vadose Zone Preferential Pathways	D. Bosch C. Truman	92-34214-7355	\$ 150,000	09/01/92- 08/31/95

** Split Funded Award

Special Research Grants Program
Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Georgia Research Foundation, Inc. Athens, GA 30602	J. Johnson W. Hargrove J. Box M. Cabrera	92-34214-7315	\$ 120,000	07/01/92- 06/30/95
Title: Measurement and Modelling of Nitrate Transport Under Conventional and No-Tillage Management				
University of Georgia Research Foundation, Inc. Athens, GA 30602	M. Cabrera D. Radcliffe M. Latimore W. Merka	92-34214-7354	\$ 200,000	09/01/92- 08/31/95
Title: Nitrogen and Phosphorus Losses from Untreated and Composted Poultry Litter				
University of Georgia Research Foundation, Inc. Athens, GA 30602	L. Shuman	92-34214-8157**	\$ 32,400	09/15/92- 09/30/93
Title: Monitoring Nitrate in Solid in situ Using Inexpensive Coated- Wire Electrodes				
Iowa State University of Science and Technology Ames, IA 50011	J. Baker J. Hatfield	90-34214-5318	\$ 360,000	07/15/90- 07/31/93
Title: Evaluation of the Impact of Current and Emerging Farming Systems on Water Quality				
Iowa State University of Science and Technology Ames, IA 50011	J. Baker R. Horton T. Kaspar	92-34214-7383	\$ 100,000	07/01/92- 06/30/95
Title: Localized Compaction and Doming to Increase N-Use Efficiency and Reduce Leaching				
Iowa State University of Science and Technology Ames, IA 50011	R. Schultz W. Simpkins J. Colletti M. Thompson	92-34214-7358	\$ 134,415	07/01/92- 06/30/94
Title: Constructed Multi-Species Riparian Buffer Strips as a Best Management Practice				
Iowa State University of Science and Technology Ames, IA 50011	R. Jolly U. Tim S. Padgett	92-34214-7357	\$ 125,000	07/01/92- 06/30/94
Title: Managing Water Quality and Livestock Production in a Southern Iowa Watershed				

** Split Funded Award

Special Research Grants Program
Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Iowa State University of Science and Technology Ames, IA 50011 Title: Assessment of Soil Nitrogen Tests in Animal-Based Farming Systems: Iowa	R. Killorn	92-34214-8076**	\$ 30,574	09/15/92- 09/30/93
University of Idaho Moscow, ID 83843 Title: Use of Brassica spp. in Biocontrol Strategies	M. Morra J. McCaffrey	92-34214-7356	\$ 95,000	08/01/92- 07/31/94
University of Illinois Urbana, IL 61801 Title: Ped Coating Influence on Pesticide Transport	W. Banwart J. Hassett	92-34214-7290	\$ 80,000	08/15/92- 08/31/94
Purdue University West Lafayette, IN 47907 Title: A Real-Time Soil Nitrate Sensor	L. Gaultney	92-34214-8158**	\$ 31,784	09/15/92- 09/30/93
Kansas State University Manhattan, KS 66506 Title: Variable Nitrogen Management for Improving Groundwater Quality	J. Havlin G. Kluitenberg N. Zhang M. Schrock	92-34214-7316	\$ 124,000	09/01/92- 08/31/95
University of Kentucky Research Foundation Lexington, KY 40506-0057 Title: Manure Applied to Shallow, Well Drained Soils: Improving Groundwater Quality	J. Grove M. Coyne W. Thom	92-34214-7360	\$ 130,000	09/01/92- 08/31/95
University of Kentucky Research Foundation Lexington, KY 40506-0057 Title: Agricultural BMPs and Surface Water-Groundwater Interaction in Karst Terrain	J. Taraba	92-34214-7359	\$ 225,000	07/01/92- 06/30/95

** Split Funded Award

Special Research Grants Program
Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Board of Supervisors Louisiana State University and A&M College Baton Rouge, LA 70893-0905 Title: Development of a N Test for Cotton Grown in the Humid Southeast	G. Breitenbeck D. Boquet	92-34214-8077**	\$ 31,332	09/15/92- 09/30/93
University of Massachusetts Amherst, MA 01003 Title: Nitrate Leaching in Manured Alfalfa and the Alfalfa-Corn Rotation	S. Herbert P. Veneman	92-34214-7292	\$ 113,943	06/01/92- 05/31/94
University of Massachusetts Amherst, MA 01003 Title: Protecting Groundwater Resources and Farm Profitability via Pest Control Advice	L. Moffitt P. Bhowmik	92-34214-7291	\$ 118,610	06/01/92- 05/31/94
Michigan State University East Lansing, MI 48824 Title: Management Effects on Colloid-Enhanced Transport of Herbicides and Phosphorus	S. Anderson F. Pierce	92-34214-7384	\$ 105,717	08/01/92- 07/31/94
Michigan Technological University Houghton, MI 49931 Title: Pesticide Transport in Unsaturated Soil Under Unstable Flow Conditions	J. Gierke N. Hutzler	92-34214-7385	\$ 120,000	07/01/92- 06/30/94
University of Minnesota Minneapolis, MN 55415 Title: Midwest Initiative on Water Quality: Northern Cornbelt Stand Plains Proposal	J. Anderson	90-34214-5317	\$ 360,000	07/01/90- 06/30/93
University of Minnesota Minneapolis, MN 55415 Title: Ground Water Contamination from Depression Focused Recharge	B. Wilson J. Nieber S. Gupta	92-34214-7318	\$ 130,000	06/15/92- 06/30/95

** Split Funded Award

Special Research Grants Program
Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Minnesota Minneapolis, MN 55415 Title: Tillage and Manure Interactions on Subsurface Water Quality in Karst Terrains	J. Moncrief S. Gupta	92-34214-7317	\$ 220,000	09/01/92- 08/31/95
University of Minnesota Minneapolis, MN 55415 Title: Petiole Sap Nitrate Test for Predicting Nitrogen Needs of Irrigated Potatoes	C. Rosen C. Reece	92-34214-8159**	\$ 32,313	09/15/92- 09/30/93
University of Minnesota Minneapolis, MN 55415 Title: Assessment of Soil Nitrogen Tests in Animal-Based Farming Systems: Minnesota	G. Randall M. Schmitt	92-34214-8160**	\$ 29,856	09/15/92- 09/30/93
University of Missouri Columbia, MO 65211 Title: Alternative Management Systems for Enhancing Water Quality in an Aquifer Underlying Claypan Soils	A. Prato	90-34214-5319	\$ 360,000	07/15/90- 07/31/93
University of Missouri Columbia, MO 65211 Title: Nonoperator Farmowner Adoption of Improved Ground Water Protection Strategies	J. Rikoon	92-34214-7293	\$ 98,416	09/01/92- 12/31/94
University of Missouri Rolla, MO 65401 Title: Probabilistic Risk and Sensitivity for Unsaturated Flow and Transport	J. Cawlfield	92-34214-7386	\$ 120,000	08/01/92- 07/31/95
Montana State University Bozeman, MT 59717 Title: Resin Capsule Test for N Availability to Crops and Leaching Potential	E. Skogley R. Lockerman	92-34214-8161**	\$ 31,875	09/15/92- 09/30/93

** Split Funded Award

Special Research Grants Program
Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of North Carolina at Chapel Hill Chapel Hill, NC 27599-4100 Title: Distinguishing Animal and Human Fecal Contamination of Water Using Enteric Viruses	M. Sobsey R. Leon	92-34214-7319	\$ 110,000	07/01/92- 12/31/93
North Carolina State University Raleigh, NC 27695-7003 Title: Developing an Enzymatic Assay for Predicting N Release from Organic Residues	R. Mikkelsen A. Wollum	92-34214-8163**	\$ 26,910	09/15/92- 09/30/93
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704 Title: Evaluation of Irrigation Wells as Sampling Mechanisms	D. Gosselin J. Ayers Y. Zhang	92-34214-7388	\$ 122,102	07/01/92- 06/30/94
Agricultural Expt. Station University of Nebraska, Lincoln, NE 68583-0704 Title: A Sampling Strategy to Better Assess the Vertical Movement of Agrichemicals	W. Powers P. Shea D. Marx	92-34214-7389	\$ 125,000	07/01/92- 06/30/95
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704 Title: Stochastic Analysis and Simulation of Time-Dependent Solute Transport in Soils	Y. Zhang	92-34214-7387	\$ 168,000	07/01/92- 06/30/94
University of Nebraska Lincoln, NE 68588-0430 Title: Risk-Cost Management for Nitrate-Contaminated Groundwater Uncertainties	M. Dahab W. Woldt I. Bogardi	92-34214-7457	\$ 110,000	07/01/92- 06/30/94
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704 Title: Improvement of Water Quality by Use of a Sensor Controlled Intermittent Sprayer	K. Von Bargen D. Mortensen G. Meyer	92-34214-7390	\$ 110,000	09/01/92- 08/31/95

** Split Funded Award

Special Research Grants Program
Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704 Title: Management of Irrigated Corn and Soybeans to Minimize Ground Water Contamination	D. Watts R. Spalding	90-34214-5218	\$ 360,000	07/01/90- 06/30/93
Agricultural Expt. Station University of Nebraska Lincoln, NE 68583-0704 Title: Calibration of Residual Soil Nitrate for Predicting Supplemental N for Sorghum	D. Sander K. Frank E. Penas	92-34214-8162**	\$ 30,300	09/15/92- 09/30/93
New Mexico Inst. of Mining and Technology Socorro, NM 87801 Title: Plant Uptake and Plant Toxicity of Fluorobenzoate Soil and Groundwater Tracers	R. Bowman	92-34214-7417	\$ 120,000	09/01/92- 08/31/94
Cornell University Ithaca, NY 14853 Title: Weed, Water & Soil Management Practices to Reduce Leaching of Agric. & Orchard Chemicals in Tile Lines & Shallow Ground Water	M. Walter J. Parlange T. Steenhuis L. Geohring	92-34214-7391	\$ 115,000	07/01/92- 06/30/95
Cornell University Ithaca, NY 14853 Title: Evaluation of Soil Test Nitrogen Procedures in Maize Based Cropping Systems	J. Duxbury S. Klausner H. van Es	92-34214-8234**	\$ 32,400	09/15/92- 09/30/93
Inst. of Ecosystem Studies, The NY Botanical Garden Millbrook, NY 12545 Title: Groundwater Denitrification: The Importance of Surface and Subsurface Carbon Sources	P. Groffman	92-34214-7418	\$ 120,000	07/01/92- 06/30/94
Ohio State University Research Foundation Columbus, OH 43210 Title: The Ohio Buried Valley Aquifer Management Systems Evaluation Area	A. Ward E. Bair T. Logan	90-34214-5175	\$ 360,000	07/01/90- 06/30/93

** Split Funded Award

Special Research Grants Program
Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Ohio State University Research Foundation Columbus, OH 43210 Title: Calibrating the Pre-sidedress N Soil Test for Specific Cropping Conditions	D. Eckert	92-34214-8235**	\$ 31,242	09/15/92- 09/30/93
Oklahoma State University Stillwater, OK 74078 Title: Micellar Electrokinetic Capillary Chromatography of Pesticides	Z. Rassi	92-34214-7325	\$ 89,224	09/01/92- 08/31/94
Agricultural Expt. Station Oklahoma State University Stillwater, OK 74078 Title: Economic and Environmental Impacts of Water Quality Protection Policies in the High Plains	H. Mapp D. Bernardo R. Elliott	92-34214-7301	\$ 37,620	08/01/92- 07/31/94
Oregon State University Corvallis, OR 97331 Title: Regulating Movement of Nitrates into Groundwater: An Aggregate Economic Analysis	G. Perry R. Adams	92-34214-7361	\$ 170,338	08/01/92- 07/31/94
Oregon State University Corvallis, OR 97331 Title: Analysis of Microbial Processes Pertaining to Water Quality in the Vadose Zone	L. Boersma	92-34214-7302	\$ 124,000	09/01/92- 08/31/94
USDA/ARS North Atlantic Area Philadelphia, PA 19118 Title: Improved Pesticide Delivery Systems by Addition of Microbial Enzymes	W. Fett R. Moreau	92-34214-7320	\$ 119,000	06/01/92- 05/31/94
Carnegie Mellon University Pittsburgh, PA 15213 Title: Effects of Natural Organic Matter on Fate of Inorganic Ions in Groundwater Systems	D. Dzombak A. Jacobson	92-34214-7321	\$ 120,000	08/01/92- 07/31/94

** Split Funded Award

Special Research Grants Program
Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Pennsylvania State University University Park, PA 16802 Title: Ground Water Pollution Potential in Pennsylvania: A GIS Assessment	J. Hamlett G. Petersen	92-34214-7324	\$ 120,000	07/01/92- 12/31/94
Pennsylvania State University University Park, PA 16802 Title: Farm Specific Economic Thresholds as a Strategy for Stimulating Adoption of Improved Nitrogen Management Practices	R. Weaver A. Luloff	92-34214-7322	\$ 95,000	07/01/92- 12/31/94
Pennsylvania State University University Park, PA 16802 Title: Evaluation of Nitrate Leaching Computer Models Using Detailed in Situ Data	R. Fox D. Fritton J. Jabro	92-34214-7323	\$ 129,000	07/01/92- 06/30/94
Pennsylvania State University University Park, PA 16802 Title: Developing Tests to More Accurately Predict Economic Optimum N Rates for Corn	R. Fox	92-34214-8078**	\$ 31,813	09/15/92- 09/30/93
Pennsylvania State University University Park, PA 16802 Title: Identification of Barriers to Adoption/Diffusion of Nitrogen Availability Tests	T. Rollins D. Beegle G. Roth R. Fox	92-34214-8164**	\$ 27,400	09/15/92- 09/30/93
South Dakota State University Brookings, SD 57007 Title: Improvement and Implementation of the Pre-Plant Nitrate-Nitrogen Soil Test	R. Gelderman J. Gerwing	92-34214-8236**	\$ 32,706	09/15/92- 09/30/93
University of Texas Austin, TX 78713-7726 Title: Decision Support System for the MSEA/MASTER Program	D. Maidment R. Charbeneau	92-34214-7303	\$ 60,000	07/01/92- 06/30/93

** Split Funded Award

Special Research Grants Program
Water Quality

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Texas A&M Research Foundation College Station, TX 77843 Title: Influence of Redox on Mineralization, Retention and Release of Soil Ammonium	R. Loeppert F. Turner	92-34214-8165**	\$ 32,400	09/15/92- 09/30/93
Texas A&M Research Foundation College Station, TX 77843 Title: Plant and Soil N Analysis, Irrigation Technology, Economics and N Use Efficiency	A. Onken E. Segarra W. Lyle	92-34214-8166**	\$ 31,926	09/15/92- 09/30/93
Utah State University Logan, UT 84322 Title: Fertilizer Nitrogen Dynamics Under Minimum-Leaching Irrigation Management	J. Stark L. Dudley R. Hanks	92-34214-7326	\$ 105,000	07/01/92- 06/30/94
University of Vermont Burlington, VT 05405 Title: Pre-Sidedress Nitrate Test (PSNT) for Corn Following Sod	F. Magdoff R. Durieux	92-34214-8079**	\$ 31,528	09/01/92- 08/31/94
Washington State University Pullman, WA 99164-5045 Title: Analysis of the Potential for Degradation of Carbonfuran in Soil Profiles	A. Ogram L. Ou	92-34214-7564	\$ 195,000	09/01/92- 08/31/95
Board of Regents University of Wisconsin Madison, WI 53706 Title: Barriers to the Adoption of Improved Nitrogen Tests and Crediting	P. Nowak F. Madison	92-34214-8167**	\$ 31,550	09/15/92- 09/30/93
Board of Regents University of Wisconsin Madison, WI 53706 Title: Assessment of Soil Nitrogen Tests in Animal-based Farming Systems: Wisconsin	L. Bundy	92-34214-8168**	\$ 30,793	09/15/92- 09/30/93

** Split Funded Award

Total : \$ 8,567,652***

***Includes \$130,000 transferred from ARS & EPA

RANGELAND RESEARCH

Rangeland Grants are awarded to support research underlying the range management discipline. Grants are awarded in the several research areas deemed to be of high priority by the reviewing panel. Because of the complex nature of the ecosystem classified as range, the research areas are varied. Grants are awarded to examine fundamental relationships of: the riparian ecosystems, range rehabilitation, control of invasive undesirable plants, plant-animal interactions, and range management.

Rangeland Research Grants Program
 Rangeland Research Grants

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
USDA/ARS Northern Plains Area Fort Collins, CO 80526 Title: Genetic Improvement of Water-use Efficiency via Carbon Isotope Discrimination	D. Johnson K. Asay	92-38300-7425	\$ 77,000	08/01/92- 07/31/95
Colorado State University Ft. Collins, CO 80523 Title: Nitrogen Availability Effects on Competitive Replacement of Grasses by Shrubs	E. Redente T. McLendon	92-38300-7424	\$ 69,391	09/01/92- 08/31/95
Montana State University Bozeman, MT 59717 Title: Livestock, Forage and Grasshopper Interactions: Biotic and Abiotic Components	B. Olson K. O'Neill W. Kemp	92-38300-7426	\$ 78,500	09/01/92- 08/31/94
Oregon Graduate Inst. of Science & Technology Beaverton, OR 97006-1999 Title: Resource Availability in Mesquite/Grassland Systems in the Jornada Basin	W. Jarrell M. Abrams	92-38300-7458	\$ 78,500	07/01/92- 06/30/93
Agricultural Expt. Station Texas A&M University System College Station, TX 77843 Title: Flammability and Plant Chemistry: Manipulation for Control of Woody Invaders	M. Owens C. Taylor S. Whisenant	92-38300-7460	\$ 72,000	09/01/92- 08/31/95
Agricultural Expt. Station Texas A&M University System College Station, TX 77843 Title: Organization and Function of the Bunchgrass Growth Form: An Alternative Hypothesis	D. Briske T. Boutton	92-38300-7459	\$ 79,000	09/01/92- 08/31/95

Total : \$ 454,391

FOOD AND AGRICULTURAL SCIENCES NATIONAL NEEDS
GRADUATE FELLOWSHIPS GRANT PROGRAM

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This program was initiated because of increasing concern about growing shortages of trained professionals in the food and agricultural sciences. The objective of the program is to encourage outstanding students (U.S. citizens) to pursue and complete a graduate degree in an area of the food and agricultural sciences for which there is a national need for the development of scientific expertise. The fiscal year 1992 program consisted of grants to colleges and universities with superior graduate teaching and research programs in the targeted areas of the food and agricultural sciences. Fellowships were awarded in the following areas in fiscal year 1992:

Biotechnology--Animal	\$1,134,000
Food Science/Human Nutrition	1,115,520
Marketing or Management--Food,	
Forest Products,	
or Agribusiness	
	<u>1,134,000</u>
	\$3,383,520*

*An additional \$11,480 was awarded to The Pennsylvania State University to complete the funding of partial fellowship awarded in FY 1991 in the national need area of Engineering--Food, Forest Products, or Agricultural.

This program is administered under the authority of Section 1417(b)(6) of P.L. 95-113, as amended (7 U.S.C. 3152). Eligible institutions include all U.S. colleges and universities which confer a graduate degree in an area of the food and agricultural sciences targeted for national needs fellowships.

National Needs Graduate Fellowships Program
Biotechnology, Animal

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Colorado State University Ft. Collins, CO 80523 DOCTORAL: 2	G. Niswender	92-38420-7330	\$ 108,000	09/01/92-08/31/97
University of Delaware Newark, DE 19716 DOCTORAL: 3	R. Morgan C. Keeler J. Burnside	92-38420-7329	\$ 162,000	09/01/92-08/31/97
University of Florida Gainesville, FL 32611 DOCTORAL: 2	R. Simmen P. Hansen F. Simmen	92-38420-7331	\$ 108,000	09/01/92-08/31/97
University of Illinois Urbana, IL 61801 DOCTORAL: 2	L. Schook B. White	92-38420-7333	\$ 108,000	09/01/92-08/31/97
Michigan State University East Lansing, MI 48824 DOCTORAL: 2	P. Coussens	92-38420-7430	\$ 108,000	09/01/92-08/31/97
The Regents of the University of Minnesota Minneapolis, MN 55108 DOCTORAL: 3	T. Molitor M. Murtaugh	92-38420-7339	\$ 162,000	09/01/92-08/31/97
University of Missouri Columbia, MO 65211 DOCTORAL: 3	R. Roberts B. Day	92-38420-7342	\$ 162,000	09/01/92-08/31/97

National Needs Graduate Fellowships Program
Biotechnology, Animal

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Missouri Columbia, MO 65211 DOCTORAL: 2	G. Buening	92-38420-7343	\$ 108,000	09/01/92- 08/31/97
Cornell University Ithaca, NY 14853 DOCTORAL: 2	R. Avery	92-38420-7366	\$ 108,000	09/01/92- 08/31/97

Total : \$ 1,134,000

National Needs Graduate Fellowships Program
Food Science

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Iowa State University of Science and Technology Ames, IA 50011 DOCTORAL: 1	P. Murphy S. Hendrich	92-38420-7428	\$ 54,000	09/01/92- 08/31/97
Purdue University West Lafayette, IN 47907 DOCTORAL: 1	S. Nielsen	92-38420-7336	\$ 54,000	09/01/92- 08/31/97
The Regents of the University of Minnesota Minneapolis, MN 55108 DOCTORAL: 2	F. Busta	92-38420-7340	\$ 108,000	09/01/92- 07/15/97
North Carolina State University Raleigh, NC 27695-7003 DOCTORAL: 1	D. Larick	92-38420-7367	\$ 54,000	09/01/92- 08/31/97
University of Nebraska Lincoln, NE 68588-0430 DOCTORAL: 3	S. Taylor R. Hutchins	92-38420-7364	\$ 162,000	09/01/92- 08/31/97
The Ohio State University Columbus, OH 43210-1063 DOCTORAL: 2	G. Chism	92-38420-7368	\$ 108,000	09/01/92- 08/31/97

Total : \$ 540,000

National Needs Graduate Fellowships Program
Human Nutrition

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671 DOCTORAL: 1	R. Rucker B. Schneeman	92-38420-7327	\$ 54,000	09/01/92- 08/31/97
University of Chicago Chicago, IL 60637 DOCTORAL: 2	D. Schoeller	92-38420-7335	\$ 108,000	09/01/92- 08/31/97
Cornell University Ithaca, NY 14853 DOCTORAL: 4	C. Garza B. Lewis	92-38420-7365	\$ 162,000	09/01/92- 08/31/97
The Ohio State University Columbus, OH 43210-1063 DOCTORAL: 1	K. Lee	92-38420-7370	\$ 54,000	09/01/92- 08/31/97
Pennsylvania State University University Park, PA 16802 DOCTORAL: 1	J. Milner P. Kris-Etherton	92-38420-7371	\$ 54,000	09/01/92- 08/31/97
Board of Regents University of Wisconsin Madison, WI 53706 DOCTORAL: 3	J. Suttie	92-38420-7373	\$ 143,520	09/01/92- 08/31/97

Total : \$ 575,520

National Needs Graduate Fellowships Program
Food, Forest Products, or Agribusiness

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of California Davis, CA 95616-8671 DOCTORAL: 2	H. Carman	92-38420-7328	\$ 108,000	09/01/92- 08/31/97
University of Florida Gainesville, FL 32611 DOCTORAL: 3	C. Moss E. Babb	92-38420-7332	\$ 162,000	09/01/92- 08/31/97
Iowa State University of Science and Technology Ames, IA 50011 DOCTORAL: 3	F. Antonovitz G. Moschini	92-38420-7429	\$ 162,000	09/01/92- 08/31/97
The Board of Trustees University of Illinois Champaign, IL 61820-6242 DOCTORAL: 2	F. Winter M. Mazzocco	92-38420-7334	\$ 108,000	09/01/92- 08/31/97
Purdue University West Lafayette, IN 47907 DOCTORAL: 3	J. Akridge W. Schiek	92-38420-7337	\$ 162,000	09/01/92- 08/31/97
Kansas State University Manhattan, KS 66506 DOCTORAL: 2	G. Brester O. Grunewald	92-38420-7338	\$ 108,000	09/01/92- 08/31/97
The Regents of the University of Minnesota Minneapolis, MN 55108 DOCTORAL: 2	J. Kinsey J. Hammond	92-38420-7341	\$ 54,000	09/01/92- 08/31/97

National Needs Graduate Fellowships Program
Food, Forest Products, or Agribusiness

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Ohio State University Research Foundation Columbus, OH 43210 DOCTORAL: 3	D. Forster D. Henderson	92-38420-7369	\$ 162,000	09/01/92- 08/31/97
Virginia Polytechnic Institute & State University Blacksburg, VA 24061-0429 DOCTORAL: 2	E. Jones E. Peterson	92-38420-7372	\$ 108,000	09/01/92- 08/31/97

Total : \$ 1,134,000

National Needs Graduate Fellowships Program
Engineering - Food, Forest Products, or Agricultural

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Pennsylvania State University University Park, PA 16802 DOCTORAL: 1	D. Buffington	91-38420-6087	\$ 11,480	09/01/91- 08/31/96

Total : \$ 11,480

1890 INSTITUTION CAPACITY BUILDING GRANTS PROGRAM

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The objective of this program is to advance the teaching and research capabilities of the 1890 Land-Grant Institutions and Tuskegee University through cooperative initiatives with Federal and non-Federal entities. This program addresses the need to: (1) attract more minority students into the food and agricultural sciences, (2) expand the linkages among the 1890 Institutions and with other colleges and universities, and (3) strengthen the overall capacity of the 1890 Land-Grant Institutions to more firmly establish them as full partners in the food and agricultural science and education system. Teaching projects addressed the following targeted need areas: curricula design and materials development, faculty preparation and enhancement, instruction delivery systems, student experiential learning, instrumentation for teaching, and student recruitment and retention. Research projects addressed high-priority initiatives where there is a present or anticipated need for increased capabilities, such as studies and experimentation in the food and agricultural sciences, the establishment of centralized research support systems, and the development of improved technology delivery systems for producers and consumers. Funds to support research and teaching projects were used as follows:

Research grants	\$4,904,820
Teaching grants	4,971,250
	\$9,876,070

This program is administered under the authority contained in Section 1472(c) of the National Agricultural Research, Extension, and Teaching Policy Act of 1977, as amended (7 U.S.C. 3318). Eligible institutions include the sixteen 1890 Land-Grant Institutions and Tuskegee University.

1890 Capacity Building Grants Program
 1890 Capacity Building Grants - Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Alabama A&M University Normal, AL 35762 Title: Lipases as Biocatalysts for the Synthesis of Flavor and Fragrance Esters	C. Akoh J. Thompson	92-38814-7475	\$ 179,462	08/01/92- 07/31/94
Alabama A&M University Normal, AL 35762 Title: Improved Management of Watersheds Using Remote Sensing and GIS Techniques	T. Coleman O. Montgomery	92-38814-7473	\$ 224,959	08/01/92- 07/31/94
Alabama A&M University Normal, AL 35762 Title: Clonal Propagation and In Vitro Culture of Select Improved Pinus Geotypes	G. Brown G. Sharma	92-38814-7474	\$ 139,763	09/01/92- 08/31/95
Alabama A&M University Normal, AL 35762 Title: Seed Storage Protein Gene Transformation and Plant Regeneration in Avena and Triticum	G. Sharma	92-38814-7472	\$ 227,613	09/01/92- 08/31/95
Tuskegee University Tuskegee, AL 36088 Title: The Effects of Social Support Agents on Young Adult Black Males in Alabama	R. Zabawa N. Baharanyi	92-38814-7478	\$ 222,071	09/01/92- 08/31/95
Tuskegee University Tuskegee, AL 36088 Title: Development of Sweet Potato Growth and Biomass Simulation Model for Varied Environments	C. Bonsi H. Janes W. Hill P. Loretan	92-38814-7476	\$ 223,509	09/01/92- 08/31/95
Tuskegee University Tuskegee, AL 36088 Title: Gene Transfer to Sweet Potato for Disease Resistance	C. Prakash C. Bonsi	92-38814-7477	\$ 140,041	07/01/92- 06/30/95

1890 Capacity Building Grants Program
 1890 Capacity Building Grants - Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Delaware State College Dover, DE 19901	N. Dill R. Peiffer P. Sandridge	92-38814-7479	\$ 240,694	07/01/92- 06/30/95
Title: Developing Strategies for Managing Pest and Stress in Urban Forests				
Florida A&M University Tallahassee, FL 32307	Y. Hsieh	92-38814-7481	\$ 308,124	08/01/92- 07/31/95
Title: Wetland Status and Water Quality of North Florida				
Florida A&M University Tallahassee, FL 32307	V. Lamikanra	92-38814-7480	\$ 276,808	07/01/92- 06/30/95
Title: Compositional and Quality Characteristics of Chevron				
Fort Valley State College Fort Valley, GA 31030-3298	E. Amoah S. Gelaye S. Mobini	92-38814-7482	\$ 177,565	09/01/92- 08/31/95
Title: Control of Breeding in Dairy Goats Using Changes in Light and Hormones				
Fort Valley State College Fort Valley, GA 31030-3298	E. Amoah S. Gelaye S. Mobini	92-38814-7483	\$ 223,800	09/01/92- 08/31/95
Title: Initial Steps Towards "Gene Transfer Farming" in Goats				
Kentucky State University Frankfort, KY 40601	M. Callaway	92-38814-7485	\$ 113,433	09/01/92- 08/31/95
Title: Characterization of the Geographic, Morphological, and Molecular Variation in <i>Asimina triloba</i>				
Kentucky State University Frankfort, KY 40601	S. Mims	92-38814-7484	\$ 214,567	09/01/92- 08/31/95
Title: All Female Production of Paddlefish				

1890 Capacity Building Grants Program
 1890 Capacity Building Grants - Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Alcorn State University Lorman, MS 39096	P. Igbokwe D. Alipoe M. Rizvi	92-38814-7486	\$ 287,456	07/01/92- 06/30/95
Title: Sustainable Vegetable Production in Mississippi				
Langston University Langston, OK 73050	T. Sahlu S. Hart S. Coleman P. Klein	92-38814-7488	\$ 345,441	09/01/92- 08/31/95
Title: Determination of Energy Requirements Unique to the Goat				
Langston University Langston, OK 73050	T. Sahlu S. Hart S. Coleman	92-38814-7487	\$ 292,925	09/01/92- 08/31/95
Title: Exogenous Hormone and Nutritional Manipulation to Increase Fiber Production				
South Carolina State College Orangeburg, SC 29117	K. Mathur B. Frishberg C. Underwood	92-38814-7489	\$ 314,928	09/01/92- 08/31/94
Title: Cholesterol, Selected Mineral and Health Status of the Elderly in South Carolina				
Tennessee State University Nashville, TN 37209-1516	R. Sauve	92-38814-7490	\$ 314,857	09/01/92- 08/31/95
Title: Development of Anthracnose Resistant Flowering Dogwood Cultivars				
Prairie View A&M University Prairie View, TX 77446	C. Braithwaite	92-38814-7491	\$ 178,253	09/01/92- 08/31/95
Title: Capacity Building in the Development of Molecular Markers for Goat Disease				
Prairie View A&M University Prairie View, TX 77446	G. Osuji R. Cuero	92-38814-7492	\$ 185,743	09/01/92- 08/31/95
Title: Development of Bioremediation for Heavy Metal Ion Sequestration by Crops				

1890 Capacity Building Grants Program
1890 Capacity Building Grants - Research

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
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Virginia State University
Petersburg, VA 23803
Title: Breed Improvement and Feeding Strategies for Increased Meat Goat Production in Virginia

Total : \$ 4,904,820

1890 Capacity Building Grants Program
 1890 Capacity Building Grants - Teaching

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Alabama A&M University Normal, AL 35762	G. Wheelock W. Cheatham J. Richardson	92-38820-7494	\$ 215,810	08/01/92- 07/31/94
Title: Networked Instructional System for Food and Agricultural Sciences				
Tuskegee University Tuskegee, AL 36088	W. Hill	92-38820-7495	\$ 202,500	08/01/92- 07/31/95
Title: Improving Capacity for AG*SAT Related Telecommunications and Distant Learning				
Tuskegee University Tuskegee, AL 36088	E. Jenkins P. Reddy S. Wilson	92-38820-7496	\$ 199,486	07/01/92- 06/30/95
Title: Strengthen the Graduate Program in Food Animal Health at Tuskegee University				
University of Arkansas Pine Bluff, AR 71601	J. McCray J. Burleigh	92-38822-7447	\$ 199,037	09/01/92- 08/31/95
Title: Bachelor's Degree in Regulatory Science				
University of Arkansas Pine Bluff, AR 71601	E. Neal	92-38820-7497	\$ 202,485	09/01/92- 08/31/95
Title: Strategies to Increase Minority Representation in Nutrition and Dietetics				
Florida A&M University Tallahassee, FL 32307	C. Kidd	92-38820-7498	\$ 199,594	08/01/92- 07/31/95
Title: Conduct Feasibility Study and Develop an Agricultural Engineering Degree Program				
Florida A&M University Tallahassee, FL 32307	O. Onokpise	92-38820-7499	\$ 203,081	08/01/92- 07/31/95
Title: Developing Human Capital in Agronomy and Related Sciences				

1890 Capacity Building Grants Program
 1890 Capacity Building Grants - Teaching

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Fort Valley State College Fort Valley, GA 31030-3298	C. Magee C. Nguyen N. Brown	92-38820-7500	\$ 164,135	09/01/92- 08/31/95
Title: Science Apprenticeship Program for High School Juniors and Seniors				
Southern University Baton Rouge, LA 70813	K. Chin B. Phills V. Bachireddy	92-38822-7448	\$ 202,500	09/01/92- 08/31/95
Title: Enhancement of the Southern University Urban Forestry Program				
University of Maryland - Eastern Shore Princess Anne, MD 21853	G. Shorter A. Shaw	92-38820-7502	\$ 110,561	09/01/92- 08/31/94
Title: Curriculum Development: Masters' of Science Programs in the School of Agricultural Sciences				
University of Maryland - Eastern Shore Princess Anne, MD 21853	M. Neufville J. Graham	92-38822-7449	\$ 172,330	09/01/92- 08/31/94
Title: Strengthening Educational Capacities in the Food and Agricultural Sciences				
University of Maryland - Eastern Shore Princess Anne, MD 21853	B. Blakely R. Walker	92-38820-7501	\$ 169,548	09/01/92- 08/31/95
Title: Enhancing the Dietetics Program at the University of Maryland Eastern Shore				
Lincoln University Jefferson City, MO 65101	R. Savage N. Mikkelson	92-38820-7505	\$ 106,831	09/01/92- 08/31/95
Title: Natural Resources Course Development and Enrichment				
Lincoln University Jefferson City, MO 65101	F. Hassien R. Savage	92-38822-7451	\$ 202,500	09/01/92- 08/31/95
Title: Development of GIS Capabilities in Undergraduate Education				

1890 Capacity Building Grants Program
 1890 Capacity Building Grants - Teaching

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Lincoln University Jefferson City, MO 65101 Title: Student Education, Enhancement and Development	D. Wallace	92-38820-7506	\$ 188,532	09/01/92- 08/31/95
Lincoln University Jefferson City, MO 65101 Title: Office of Professional Development	D. Wallace	92-38822-7452	\$ 100,000	09/01/92- 08/31/94
Alcorn State University Lorman, MS 39096 Title: Expanding Student Experiential Learning in Agribusiness and International Agriculture	D. Alipoe L. Huam S. Donald	92-38820-7504	\$ 202,500	09/01/92- 08/31/95
Alcorn State University Lorman, MS 39096 Title: Curriculum Development in Dairy Sciences	E. Cuadra G. Bates	92-38822-7450	\$ 172,330	09/01/92- 08/31/95
Alcorn State University Lorman, MS 39096 Title: Strategic Recruitment of Minorities/K-12 Students for Agriculture Related Careers	K. Simmons	92-38820-7503	\$ 199,507	09/01/92- 08/31/95
North Carolina A&T State University Greensboro, NC 27411 Title: Increasing Capacity to Recruit, Retain, and Train Minority and Female High School Students for the Food-Agri.-Environ. Sciences	A. Shahbazi	92-38822-7453	\$ 198,000	07/01/92- 06/30/95
North Carolina A&T State University Greensboro, NC 27411 Title: Enhancement of the Graduate Program and Recruitment of Minority Graduate Students in Plant and Soil Science	G. Reddy	92-38820-7508	\$ 201,778	07/01/92- 06/30/95

1890 Capacity Building Grants Program
 1890 Capacity Building Grants - Teaching

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
North Carolina A&T State University Greensboro, NC 27411 Title: Improving Capacity for AG*SAT Related Telecommunications and Distance Learning	B. Webb	92-38820-7507	\$ 202,500	07/01/92- 06/30/95
Langston University Langston, OK 73050 Title: Recruitment and Retention of Ethnic Minorities in Nutrition and Dietetics Program	D. Gaffney S. Sangiah O. Moten	92-38820-7509	\$ 202,401	08/01/92- 07/31/95
Langston University Langston, OK 73050 Title: Minorities in Agriscience Program in Total Quality Management Environment	P. Carey E. Weeks	92-38820-7510	\$ 146,840	07/01/92- 06/30/95
South Carolina State College Orangeburg, SC 29117 Title: Building Capacity for Long Range Human Capital Development in Agribusiness	E. Onunkwo M. Kinard	92-38822-7454	\$ 202,229	09/01/92- 08/31/95
Prairie View A&M University Prairie View, TX 77446 Title: The TEEN NETWORK	E. Noel A. Parks	92-38820-7511	\$ 202,500	09/01/92- 08/31/95
Virginia State University Petersburg, VA 23803 Title: Enhancing Minority Participation in the Food and Agricultural Sciences Using Tele-Communications	A. Allen	92-38822-7512	\$ 201,735	09/01/92- 08/31/94

Total : \$ 4,971,250

HIGHER EDUCATION CHALLENGE GRANTS PROGRAM

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The objective of this competitive grants program is to stimulate and enable U.S. colleges and universities to provide the highest quality education necessary to produce graduates in the food and agricultural sciences capable of strengthening the Nation's scientific and professional work force. The program is designed to enhance college and university degree programs in the food and agricultural sciences. It is intended that projects supported by the program will: (1) address a regional, national, or otherwise significant higher education problem, (2) involve a creative or novel approach toward solving the problem which can serve as a model to others, (3) encourage and facilitate better working relationships in the university science and education community, as well as between universities and the private sector, to enhance program quality and supplement available resources, and (4) result in benefits which will likely transcend the project duration and USDA support. In FY 1992, the \$1,455,000 available for this program were used to support undergraduate instruction projects in the following targeted need areas:

*Curricula Design and Materials
Development
Faculty Preparation and Enhancement
Instruction Delivery Systems
Student Experiential Learning*

This program is administered under the authority contained in Section 1417(b)(1) of the National Agricultural Research, Extension, and Teaching Policy Act of 1977, as amended (7 U.S.C. 3152). Eligible institutions include the U.S. Land-Grant Colleges and Universities that have demonstrable capacity to carry out teaching in the food and agricultural sciences and business.

Challenge Grants Program
Higher Education Challenge Grants Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Florida Gainesville, FL 32611 Title: A Microcomputer Classroom Lecture Aid for Undergraduate Food and Agricultural Sciences	G. Smerage H. Beck	92-38411-8211	\$ 56,149	09/15/92- 09/30/95
University of Georgia Athens, GA 30602 Title: Introducing Global Development Issues into the Curriculum: A Modular Approach	R. Swagler	92-38411-8213	\$ 62,852	09/15/92- 12/31/94
University of Georgia Athens, GA 30602 Title: Entrepreneurial Curriculum for the Restaurant and Apparel Industries	J. Hathcote J. Poynter	92-38411-8212	\$ 60,454	09/15/92- 06/30/95
University of Hawaii, Manoa Honolulu, HI 96822 Title: Hawaii International Program in Textiles and Clothing (HIP-TXCL)	S. Yuen C. Dickson D. Chung J. Kimmons	92-38411-8214	\$ 63,956	09/15/92- 09/30/94
University of Illinois Urbana, IL 61801 Title: Educating Students to Function in their Future and to Adapt to Change	W. George R. McBride R. Wessels	92-38411-8215	\$ 64,000	09/15/92- 09/30/94
University of Illinois Urbana, IL 61801 Title: Production of Lifelike, Full Size, Flexible Teaching Models of Food Animals	G. Pijanowski L. Abbott A. Wroblewski	92-38411-8216	\$ 63,910	09/15/92- 09/30/95
Purdue Research Foundation West Lafayette, IN 47907 Title: Impact of Agricultural Practices on Water Quality: Computer-Aided Instruction	D. Jones R. Strickland B. Engel J. Eigel	92-38411-8218	\$ 60,947	09/15/92- 09/30/94

Challenge Grants Program
Higher Education Challenge Grants Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Purdue Research Foundation West Lafayette, IN 47907 Title: Developing the International Skills and Capacities of Agriculture Undergraduates	M. Stitsworth	92-38411-8217	\$ 58,661	09/15/92- 12/31/94
Kansas State University Manhattan, KS 66506 Title: Sensory Analysis Education for the Food Science Curriculum	E. Chambers C. Setser	92-38411-8219	\$ 63,714	09/15/92- 09/30/94
Kansas State University Manhattan, KS 66506 Title: Cooperative Research Experience in Textiles for College and High School Students	B. Reagan P. Potnis D. Munson	92-38411-8220	\$ 57,419	09/15/92- 09/30/94
Morehead State University Morehead, KY 40351-1680 Title: Enhancing Undergraduate Programs: Development of an Educational Model for Environmental Concepts in Agriculture	S. Rundell	92-38411-8287	\$ 60,254	09/15/92- 09/30/94
University of Massachusetts Amherst, MA 01003 Title: The Use of Computer-Mediated Telecommunications as an Instructional Aid	J. Cunningham	92-38411-8221	\$ 51,386	09/15/92- 09/30/94
University of Maryland College Park, MD 20742 Title: Development of a Cooperative Distant Learning Delivery System for Agriculture	R. Seibel	92-38411-8313	\$ 63,952	09/15/92- 09/30/95
Michigan State University East Lansing, MI 48824 Title: Food Science/Nutrition/Business: New Interactions Between University and Industry	L. Lund N. Bobbitt	92-38411-8314	\$ 64,000	09/15/92- 09/30/95

Challenge Grants Program
Higher Education Challenge Grants Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
University of Minnesota Minneapolis, MN 55415 Title: A Specialized Senior Year Food Animal Program for Veterinary Medical Education	J. Fetrow R. Goodrich	92-38411-8306	\$ 40,000	09/15/92- 09/30/94
University of Minnesota Minneapolis, MN 55415 Title: Development of Decision Cases in Farming Systems Management	S. Simmons D. Davis M. Stanford	92-38411-8315	\$ 40,000	09/15/92- 09/30/94
Board of Regents New Mexico State University Las Cruces, NM 88003 Title: Modeling Leadership Development for a Diverse Workforce in Food and Agriculture	K. Treat	92-38411-8307	\$ 40,000	09/15/92- 09/30/95
Research Foundation of State University of New York Albany, NY 12201 Title: Education for Forest Resources: New Directions for the 21st Century	H. Canham C. Spuches	92-38411-8255	\$ 61,629	09/15/92- 09/30/94
Cornell University Ithaca, NY 14853 Title: A Multimedia System for Developing Skills in Dairy Herd Management	P. Oltenacu L. Jones	92-38411-8254	\$ 64,000	09/15/92- 03/31/94
Cornell University Ithaca, NY 14853 Title: Enhancing Agricultural Education Through Microbiology: A Computer Based Tutorial	M. Cordts S. Merkel	92-38411-8253	\$ 61,462	09/15/92- 09/30/94
State University of New York, Albany Albany, NY 12201 Title: Integrative Instructional Units in Environmental Ethics	J. Coufal C. Spuches	92-38411-8256	\$ 62,054	09/15/92- 09/30/94

Challenge Grants Program
Higher Education Challenge Grants Program

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Ohio State University Research Foundation Columbus, OH 43210 Title: Ensuring a Highly Competent Nutrition and Food Science Professional Workforce	W. Johnson D. Medeiros	92-38411-8257	\$ 63,958	09/15/92- 09/30/94
Agricultural Expt. Station Texas A&M University System College Station, TX 77843 Title: Agribusiness Education: Enhancing the Involvement of the College of Business Admin. and Grad. School of Bus. at Texas A&M Univ.	C. Nixon K. Litzenberg	92-38411-8308	\$ 40,000	09/15/92- 09/30/93
Agricultural Expt. Station Texas A&M University System College Station, TX 77843 Title: An Inter-Institutional Course on Aquatic Pathobiology for Veterinary Students	D. Lewis	92-38411-8258	\$ 68,883	09/15/92- 09/30/93
University of Vermont Burlington, VT 05405 Title: The Development and Implementation of an Integrated Core Curriculum in Natural Resources	D. DeHayes	92-38411-8222	\$ 61,360	09/15/92- 09/30/94

Total : \$ 1,455,000

SMALL BUSINESS INNOVATION RESEARCH PROGRAM

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The objectives of this program are to stimulate technological innovation in the private sector, to strengthen the role of small business in meeting Federal research and development needs, to increase private sector commercialization and development efforts, and to encourage participation of small and disadvantaged firms in technological innovation.

The program emphasizes support of high quality research and development proposals containing advanced concepts related to important agricultural problems and opportunities that could lead to significant public benefits. The areas considered in this program are broad and encompass a wide range of agricultural sciences. The subtopics include: (1) forests and related resources, (2) plant production and protection, (3) animal production and protection, (4) air, water, and soils, (5) food science and nutrition, (6) rural and community development, (7) aquaculture, and (8) industrial applications.

In fiscal year 1992, USDA awarded both Phase I and Phase II grants. Phase I grants are primarily for research designed to determine technical feasibility of the proposed approach or concept. Phase II grants are awarded to those Phase I projects that have shown sufficient promise for further support. The total amount awarded in fiscal year 1992 was \$5,627,503.

Small Business Innovation Research Program
Forests & Related Resources

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
General Pneumatics Corporation 7662 E. Gray Road, Suite 107 Scottsdale, AZ 85260-6910 Title: Power Generation From Sawmill Waste	E. Atkins	92-33610-7205**	\$ 49,892	05/15/92- 11/30/92
Artificial Intelligence Atlanta, Inc. 119 E. Court Square Decatur, GA 30030 Title: An Integrated Intelligent System For Forest Fire Detection	W. Underwood	92-33610-7240**	\$ 49,963	05/15/92- 11/30/92
Minn-Vitro, Inc. 1520 Albany Avenue St. Paul, MN 55408 Title: Maximizing Shoot Forming Efficiency of Populus using Micro-Cross Section (MCS)	K. Louis	92-33610-7824**	\$ 215,000	09/01/92- 08/31/94
Pro-West and Associates P.O. Box 812, Airport Estates Walker, MN 56484 Title: Integration of Forest Growth & Yield Prediction with Geographic Information Systems	L. Westfield J. Proper	92-33610-7944**	\$ 180,000	09/01/92- 08/31/94
Applied Biomathematics 100 North Country Road Setauket, NY 11733 Title: Computer Software for Forecasting Insect Pest Population Problems	J. Millstein	92-33610-7213**	\$ 48,971	05/15/92- 11/30/92
Tienzyme, Inc. 123 Coal Alley State College, PA 16801 Title: Application of Superior Strains of Phanerochaete Chrysosporium	S. Myer	92-33610-8071**	\$ 80,409	09/15/92- 09/30/93
Peninsu-Lab 5795 NE Minder Poulsbo, WA 98370 Title: Biocontrol of Botrytis cinerea on Greenhouse Grown Conifer Seedlings	F. McElroy	92-33610-7219**	\$ 49,517	05/15/92- 11/30/92

** Split Funded Award

Total : \$ 673,752

Small Business Innovation Research Program
Plant Production & Protection

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
B. W. Jorden & Company, Inc. 6861 Kenanna Place Tucson, AZ 85704 Title: An Instrument for Real Time Measurement of Agricultural Spray Deposition & Drift	B. Jorden	92-33610-7204	\$ 49,074	05/15/92- 11/30/92
Humbug Mountain Research Laboratories P.O. Box 1380 Duarte, CA 91010-4380 Title: Portable Precision Location Mapper for Agricultural Applications	A. Vetter	92-33610-7206	\$ 50,000	05/15/92- 04/30/93
ANTHOS 204 Del Monte Avenue Los Altos, CA 94022 Title: Cloning & Expression of an Insect Neurotransmitter Receptor, an Insecticide Target	M. Yamanaka	92-33610-7202	\$ 49,912	05/15/92- 11/30/92
Landec Labs, Inc. 3603 Haven Avenue Menlo Park, CA 94025 Title: Seed Coatings for Germination Control	L. Greene	92-33610-7881**	\$ 220,000	09/01/92- 08/31/94
Nor-Cal Wild Rice, Inc. P.O. Box 940 Woodland, CA 95695 Title: Development of Hybrid Wild Rice Through use of Cytoplasmic- Genetic Male Sterility	K. Foster	92-33610-7760**	\$ 205,000	09/01/92- 08/31/94
Earthgro, Inc Route 207, P.O. Box 143 Lebanon, CT 06249 Title: Production of Potting Mixes Predictably Suppressive to Soilborne Plant Pathogens	K. Feldman	92-33610-7207	\$ 50,000	05/15/92- 11/30/92
Electrostatic Spraying Systems, Inc. 1880 Commerce Rd., Suite 107 Athens, GA 30677 Title: Air-Assisted Electrostatic Application of Environmentally-Safe Pesticides	S. Cooper	92-33610-7883**	\$ 215,000	09/01/92- 06/30/94

** Split Funded Award

Small Business Innovation Research Program
Plant Production & Protection

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
EcoScience Corporation 1 Innovation Drive Worcester, MA 01605 Title: Model Systems for Soil-Borne Insect Bio-Control	D. Miller	92-33610-7884**	\$ 190,000	09/01/92- 04/30/94
Micromet Corporation 3135 S. State St., Suite 205 Ann Arbor, MI 48104-1653 Title: Navigation System for Automated Agricultural Applications	C. Augustine	92-33610-7255	\$ 49,999	05/15/92- 11/30/92
Bozeman Bio-Tech, Inc. Box 3146 Bozeman, MT 59772 Title: A Fast-Acting Microsporidian For Grasshopper Control	E. Vinje	92-33610-7211	\$ 46,899	05/15/92- 11/30/92
Biosystems Technologies, Inc. P.O. Box 4851, Duke Station Durham, NC 27706 Title: A Systems Approach to the Physiological Basis for Hybrid Vigor	R. Musser	92-33610-7885	\$ 215,000	09/01/92- 08/31/94
Natural Fibers Corporation P.O. Box 830 Ogallala, NE 69153 Title: Disease Control in Milkweed-Species & Ecotype Selection	M. Boosalis	92-33610-7230	\$ 49,925	05/15/92- 11/30/92
ARC Ventures, Inc. P.O. Box 191 Shiloh, NJ 08353 Title: Proof-Testing the Commercial Superiority of Single Cluster Tomato Growing Processes	B. Cobb	92-33610-7826**	\$ 200,000	09/01/92- 08/31/94
Natural Product Sciences, Inc. 420 Chipeta Way, Suite 240 Salt Lake City, UT 84108 Title: Components of Parasitic Wasp Venoms Useful for Control of Insect Pests	F. Fuller	92-33610-7217	\$ 50,000	05/15/92- 11/30/92

** Split Funded Award

Small Business Innovation Research Program
Plant Production & Protection

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Small Potatoes, Inc. 1202 Ann Street Madison, WI 53703 Title: Potato Microtuber Production in Bioreactors	P. Joyce	92-33610-7220	\$ 46,067	05/15/92- 11/30/92

Total : \$ 1,686,876

Small Business Innovation Research Program
Animal Production & Protection

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Beneficial Insectary 14751 Oak Road Oak Run, CA 96069 Title: Parasite Production and Release to Control Flies in Cattle Feedlots	S. Penn	92-33610-7239	\$ 49,497	05/15/92- 11/30/92
Ambico, Inc. 902 Sugar Grove Avenue Dallas Center, IA 50063 Title: The Development of a Recombinant Vaccine for <i>Isospora suis</i>	D. Quick	92-33610-7186	\$ 49,164	05/15/92- 11/30/92
Gentra Systems, Inc. 3905 Annapolis Lane Minneapolis, MN 55447 Title: Developing a Chicken MHC Typing Test Using DNA Amplification and Oligonucleotide Probes	R. Shuman	92-33610-7203	\$ 46,675	05/15/92- 11/30/92
Laboratory & Environmental Technology, Inc. 3501 Berrywood Drive Columbia, MO 65201 Title: Diagnosis of Mycoplasma Pneumonia of Swine	A. Eisenstark	92-33610-7825	\$ 220,000	09/01/92- 08/31/94
Enzyme Technology Research Group, Inc. 710 West Main Street Durham, NC 27701 Title: Electro-Immunosensor to Detect Agricultural Chemical Residues in Food Products	J. O'Daly	92-33610-7214	\$ 50,000	05/15/92- 11/30/92
Sonic Technologies, Inc. 333 Byberry Road Hatboro, PA 19040 Title: Advanced Ultrasonic Doppler System for Early Pregnancy Detection in Cattle	M. Schafer	92-33610-7271	\$ 48,730	05/15/92- 11/30/92
Detechnology, Adv. Monitoring of Animal Reprod., Inc. P.O. Box 487 Pullman, WA 99163 Title: Continuous Electronic Surveillance for Detection of Estrus in Dairy Cattle	J. Harris	92-33610-7222	\$ 49,750	05/15/92- 11/30/92

Total : \$ 513,816

Small Business Innovation Research Program
Air, Water, & Soils

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Sonoma Research Company P.O. Box 116 Vineburg, CA 95487 Title: Electrochemical Process for Destroying Pesticide Waste	O. Weres	92-33610-7759	\$ 195,000	09/01/92- 08/31/94
Yankee Environmental Systems, Inc. 101 Industrial Rd/POB 746 Turners Falls, MA 01376 Title: Low Cost Ultraviolet Spectral Instrumentation	B. Dichter	92-33610-7210	\$ 49,100	05/15/92- 11/30/92
Apogee Corporation 1028 Ridgedale Birmingham, MI 48009-5769 Title: A High-Capacity Method of Water Purification for Farm Production	J. Hanak	92-33610-7209	\$ 50,000	05/15/92- 11/30/92
ECOCHEM Research, Inc. 11 Peavey Road Chaska, MN 55318 Title: Remediation of Pesticide-Contaminated Soil by Soil Washing/ Bioslurry Treatment	D. Dobbins	92-33610-7243	\$ 49,580	05/15/92- 11/30/92
Yellowstone Environmental Science, Inc. 320 S. Willson Avenue Bozeman, MT 59715 Title: Portable Flow Measurement System	R. Hunter	92-33610-7212	\$ 50,000	05/15/92- 11/30/92
Daniel B. Stephens & Associates, Inc. 4415 Hawkins, NE Albuquerque, NM 87109 Title: One-Step Inflow/Outflow Cell to Determine Soil Hydraulic Properties	M. Ankeny	92-33610-7251	\$ 50,000	05/15/92- 11/30/92
Industrial Screen and Maintenance 750 East F Street, PO Box 373 Casper, WY 82602 Title: Using the High Shear Pin Mixer in Preparing Suspension Fertilizers	R. Miner	92-33610-7253	\$ 25,687	09/01/92- 11/30/92

Total : \$ 469,367

Small Business Innovation Research Program
Food Science & Nutrition

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Camas International, Inc. ISU-BTC, 1651 Alvin Ricken Dr. Pocatello, ID 83201 Title: Sorting Potatoes and Similar Agricultural Products into Several Density Groups	A. Zaltzman	92-33610-7823	\$ 160,000	09/01/92-08/31/94
HybriVet Systems, Inc. P.O. Box 1210 Framingham, MA 01701 Title: Detection of Heavy Metals in Water	M. Hunter	92-33610-7241	\$ 50,000	05/15/92-11/30/92
Neogen Corporation 620 Lesher Place Lansing, MI 48912 Title: A Time-Temperature History Sensor	B. Torgerson	92-33610-7192	\$ 49,800	05/15/92-11/30/92
Lynntech, Inc. 111 E. 27th St., Suite 204 Bryan, TX 77803 Title: Electrode-Linked Membrane Filtration for the Rapid Enumeration of Bacteria	G. Hitchens	92-33610-7215	\$ 50,000	05/15/92-11/30/92

Total : \$ 309,800

Small Business Innovation Research Program
Rural & Community Development

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
David M. Dornbusch and Company, Inc. 1736 Stockton Street San Francisco, CA 94133 Title: TODS: A Self-Supporting Program to Promote Rural Business and Economic Development	D. Dornbusch	92-33610-7882	\$ 155,000	09/01/92- 08/31/94
MetaDynamics, Inc. 11 South 4th St., Suite 210 Grand Forks, ND 58201 Title: Enterprise Homesteading for Rural Development	D. Zimmerman	92-33610-7256	\$ 40,153	05/15/92- 11/30/92
Straw-Bale Construction Management, Inc. 939 Acequia Madre Sante Fe, NM 87501 Title: The Use of Straw Bales for Building Rural Low Income Housing	A. Perry	92-33610-7221	\$ 49,527	05/15/92- 11/30/92
Drake Environmental Consultants 7 Michigan Street, Box 155 East Bloomfield, NY 14443-0155 Title: Expert System Shell, Multipurpose Land Information System for Rural Governments	B. Drake	92-33610-7246	\$ 49,065	05/15/92- 11/30/92
Hollow Road Farms, Inc. RR1, Box 93 Stuyvesant, NY 12173 Title: Sheep Dairying: An Employment & Revenue Generating Opportunity for Rural Areas	J. Snyder	92-33610-7247	\$ 46,624	05/15/92- 11/30/92
Synergy Systems Consulting 94 Columbus Road Athens, OH 45701 Title: Software Which Coordinates Production in Flexible Manufacturing Network	N. McCormack	92-33610-7264	\$ 48,705	05/15/92- 11/30/92
Heartland Organic Foods RR 2, Box 37 Rosholt, SD 57260 Title: Farm Scale Commercial Walleye Production as an Alternative Enterprise	R. Emrick	92-33610-7232	\$ 49,994	05/15/92- 11/30/92

Small Business Innovation Research Program
Rural & Community Development

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
CADSA, Incorporated 1835 Algoa Friendswood Rd. Alvin, TX 77511 Title: Rural Integrated Technology Centers for Community Development	B. Batson P. Tinsley	92-33610-7898	\$ 200,000	09/01/92- 08/31/94
Foresight Science and Technology, Inc. 1200 W. Sims Way, Suite 201 Port Townsend, WA 98368 Title: Rural Technology Transfer Expert System	P. Speser	92-33610-7886	\$ 180,000	09/01/92- 08/31/94

Total : \$ 819,068

Small Business Innovation Research Program
Aquaculture

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Berkeley Antibody Company (BAbCO), Inc. 4131 Lakeside Drive, Suite B Richmond, CA 94806-1965 Title: Immunoassays for Measuring Growth Hormone/Prolactin Isoforms in Tilapia	T. Anderson	92-33610-7822	\$ 200,000	09/01/92-08/31/94
Delta Western Reserach Center P.O. Box 878 Indianola, MS 38751 Title: Feeds & Feeding Strategies for Alleviating Winter Kill in Catfish	L. Myers	92-33610-7244	\$ 50,000	05/15/92-06/30/93
Jensorter, Inc. 20225 Harvest Lane Bend, OR 97701 Title: Counting Trout & Salmon Fry	G. Jensen	92-33610-7252	\$ 35,000	05/15/92-11/30/92
Jensorter, Inc. 20225 Harvest Lane Bend, OR 97701 Title: Underwater Fish Egg Separation	G. Jensen	92-33610-7902	\$ 50,000	09/01/92-08/31/93
MariGenetics, Inc. 1325 NW Ninth St. Corvallis, OR 97330 Title: Development of a Recombinant IPNV Vaccine for Protection of Salmonid Fish	L. Bootland	92-33610-7231	\$ 50,000	05/15/92-11/30/92
Technalithics, Inc. 1007 North 57th Street Waco, TX 76710-4332 Title: Enhancing Aquaculture Productivity with an Enzyme-Based CO2 System	S. Scott	92-33610-7263	\$ 49,950	05/15/92-11/30/92
American Research Corporation of Virginia P.O. Box 3406 Radford, VA 24143-3406 Title: Self-Assembled Thin Film Sensors for Aquaculture Process Control	R. Churchill	92-33610-7218	\$ 50,000	05/15/92-11/30/92

Small Business Innovation Research Program
Aquaculture

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Biopath 2897 152nd Avenue N.E. Redmond, WA 98052 Title: Modification of Vaccines for Oral Vaccination of Fish	L. Teng	92-33610-7257	\$ 49,980	05/15/92- 11/30/92

Total : \$ 534,930

Small Business Innovation Research Program
Industrial Application

ORGANIZATION	PRINCIPAL INVESTIGATORS	GRANT NUMBER	AMOUNT	AGREEMENT PERIOD
Jojoba Growers & Processors, Inc. 2267 S. Coconino Drive Apache Junction, AZ 85220 Title: Development of Lesquerella Oil Hydrogenates as Cosmetic Ingredients	J. Arquette	92-33610-7880**	\$ 220,000	09/01/92- 08/31/94
Savant-Vincent, Inc. 1916 14th Street, Suite 207 Tampa, FL 33605 Title: System Design for Ethanol Production from Reclaimed Phosphate Lands	D. Vincent	92-33610-7208	\$ 49,894	05/15/92- 11/30/92
CeraMem Corporation 12 Clematis Avenue Waltham, MA 02154 Title: Nonfouling Ceramic Membrane for Treatment of Fuel Ethanol Stillage	R. Goldsmith	92-33610-7242	\$ 50,000	05/15/92- 11/30/92
Basic Bio Systems, Inc. 2837 Fort Missoula Road Missoula, MT 59801 Title: Oat Oil Refining & Applications	R. Potter	92-33610-7245	\$ 50,000	05/15/92- 11/30/92
Lynntech, Inc. 111 E. 27th St., Suite 204 Bryan, TX 77803 Title: Electrochemical Production of Sorbitol from Sugar Syrups	O. Murphy	92-33610-7216	\$ 50,000	05/15/92- 11/30/92
International Lubricants, Inc. 410 South 96th Street, Bldg. 7 Seattle, WA 98108 Title: Oil Additives and Lubricants Derived from Telomers of Plant Oils	P. Landis	92-33610-7827	\$ 200,000	09/01/92- 08/31/94

Total : \$ 619,894

** Split Funded Award

SCIENTIST WHO SERVED ON USDA/CSRS PEER REVIEW PANELS FOR FISCAL YEAR 1992

Scientists from government, academic institutions, private organization and industry served on USDA/CSRS peer review panels this past year. Each panel was put assembled to fit the expertise needed for that specific granting area. The scientists involved are listed below alphabetically within their respective States.

Ramble		Ankumah	Tuskegee University	<u>Alabama</u>
Judy		Bonner	University of Alabama	
Eloise		Carter	Tuskegee University	
Thomas		Elder	Auburn University	
Joseph		Molnar	Auburn University	
Karen		Simmons	Tennessee Valley Authority	
Tsunenobu		Tamura	University of Alabama	
Bob		Taylor	Alabama A&M University	
R. Doug		Watson	University of Alabama	
Jim		Walworth	University of Alaska	<u>Alaska</u>
Ronald	E.	Allen	University of Arizona	<u>Arizona</u>
Patsy	M.	Brannon	University of Arizona	
Edwin		Carpenter	University of Arizona	
Elizabeth		Davidson	Arizona State University	
Tom		Doerge	University of Arizona	
Rene		Feyereisen	University of Arizona	
Christina		Kennedy	University of Arizona	
Guy		McPherson	University of Arizona	
Ian	L.	Pepper	University of Arizona	
John	W.	Radin	USDA, Agricultural Research Service	
Michael		Riggs	University of Arizona	
Judith	A.	Verbeke	University of Arizona	
Michael		Johnson	University of Arkansas	<u>Arkansas</u>
Julia	N.	Bailey-Serres	University of California	<u>California</u>
Everett		Bandman	University of California	
Don	L.	Bath	University of California	
Richard	M.	Bostock	University of California	
Elizabeth	Ann	Bray	University of California	
Leslie	J.	Butler	University of California	
Charles		Castro	University of California	
Katrina		Cornish	USDA, Agricultural Research Service	
Hugo	K.	Dooner	DNAP	
Lewis	J.	Feldman	University of California	
David		Gilchrist	University of California	
Normal	F.	Haard	University of California	
Ron		Hedrick	University of California	
Jodie	S.	Holt	University of California	
Anthony	H. C.	Huang	University of California	
Andrew	O.	Jackson	University of California	

Anthony	A.	James	University of California	<u>California</u>
Keith		Loague	University of California	
R. Michael		Mulligan	University of California	
Sharman	D.	O'Neill	University of California	
Melvin		Okamura	University of California	
Carlos Francesco		Quiros	University of California	
Kathryn		Radke	University of California	
Sharon		Shoemaker	University of California	
Gerald	G.	Still	USDA, Agricultural Research Service	
Wesley		Wallender	University of California	
Linda		Walling	University of California	
William	C.	Black IV	Colorado State University	<u>Colorado</u>
James		Collins	Colorado State University	
Ron		Follett	Colorado State University	
Daniel	H.	Gould	Colorado State University	
Jonathan	D.	Hanson	USDA, Agricultural Research Service	
Judson	M.	Harper	Colorado State University	
Nancy	A.	Irlbeck	Colorado State University	
Ann		Lynch	USDA, Forest Service	
Marcia		Patton-Mallory	USDA, Forest Service	
Robin	L.	Chazdon	University of Connecticut	<u>Connecticut</u>
Ronald		Cotterill	University of Connecticut	
David		Houston	USDA, Forest Service	
Linda		Lee	University of Connecticut	
Acie		Murry, Jr.	University of Connecticut	
Joan		Burnside	University of Connecticut	
Steven		Gutteridge	University of Delaware	<u>Delaware</u>
John		Pierce	E. I. du Pont de Nemours & Company	
William		Ritter	Stine-Haskell Research Center	
Donald	L.	Sparks	University of Delaware	
Scott	V.	Tingey	University of Delaware	
James	R.	Allen	Dupont Company	
Verna	L.	Armstrong	University of District of Columbia	<u>District of Columbia</u>
Folahan	O.	Ayorinde	AASCU	
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